



**U.S. Army  
Environmental  
Center**

**VERSION II**

## **Base Realignment and Closure (BRAC) Cleanup Plan**

**Cameron Station  
Alexandria, Virginia**

**DISTRIBUTION STATEMENT A**  
Approved for Public Release  
Distribution Unlimited

Prepared for:

**U.S. ARMY ENVIRONMENTAL CENTER  
ABERDEEN PROVING GROUND, MARYLAND 21010**

Prepared by:

**EARTH TECH  
1420 KING STREET, SUITE 600  
ALEXANDRIA, VIRGINIA 22314**

Requests for this document must be referred to:  
Post Commander, Cameron Station  
Alexandria, Virginia 22304-5050

**JANUARY 1995**

**VERSION II**

**Base Realignment and Closure (BRAC)  
Cleanup Plan**

**Cameron Station  
Alexandria, Virginia**

Prepared for:

**U.S. ARMY ENVIRONMENTAL CENTER  
ABERDEEN PROVING GROUND, MARYLAND 21010**

Prepared by:

**EARTH TECH  
1420 KING STREET, SUITE 600  
ALEXANDRIA, VIRGINIA 22314**

Requests for this document must be referred to:  
Post Commander, Cameron Station  
Alexandria, Virginia 22304-5050

**JANUARY 1995**



**This page intentionally left blank.**

# TABLE OF CONTENTS

Chapter	Page No.
Executive Summary .....	ES-1
<b>1 INTRODUCTION AND SUMMARY .....</b>	<b>1-1</b>
1.1 Environmental Response Objectives .....	1-2
1.2 BCP Purpose, Updates, and Distribution .....	1-3
1.3 BCT/Project Team .....	1-4
1.4 Installation Description and History .....	1-4
1.4.1 General Property Description .....	1-4
1.4.2 History of Installation .....	1-9
1.5 Environmental Setting .....	1-13
1.6 Hazardous Substances and Waste Management Practices .....	1-16
1.7 Off-Post Property .....	1-22
1.8 Tenant Units .....	1-22
<b>2 PROPERTY DISPOSAL AND REUSE PLAN .....</b>	<b>2-1</b>
2.1 Status of Disposal Planning Process .....	2-1
2.2 Relationship to Environmental Programs .....	2-7
2.3 Property Transfer Methods .....	2-9
2.3.1 Federal Transfer of Property .....	2-9
2.3.2 No-Cost Public Benefit Conveyance .....	2-9
2.3.3 Negotiated Sale .....	2-9
2.3.4 Competitive Public Sale .....	2-9
2.3.5 Widening of Public Highways .....	2-10
2.3.6 Donated Property .....	2-10
2.3.7 Interim Leases .....	2-10
<b>3 INSTALLATION-WIDE ENVIRONMENTAL PROGRAM STATUS .....</b>	<b>3-1</b>
3.1 Environmental Program Status .....	3-1
3.1.1 Restoration Sites .....	3-2
3.1.2 Installation-Wide Source Discovery and Assessment Status .....	3-14
3.2 Compliance Program Status .....	3-14
3.2.1 Storage Tanks .....	3-18
3.2.1.1 USTs. ....	3-18
3.2.2 Hazardous Substances Management .....	3-23
3.2.3 Hazardous Waste Management .....	3-24
3.2.4 Solid Waste Management .....	3-26
3.2.5 Polychlorinated Biphenyls (PCBs) .....	3-27
3.2.6 Asbestos .....	3-27
3.2.7 Radon .....	3-28
3.2.8 RCRA Facilities .....	3-28
3.2.9 Wastewater Discharges .....	3-28

# TABLE OF CONTENTS

Continued

Chapter		Page No.
	3.2.10 Oil/Water Separators . . . . .	3-29
	3.2.11 Pollution Prevention . . . . .	3-29
	3.2.12 NRC Licensing . . . . .	3-29
	3.2.13 Mixed Waste . . . . .	3-29
	3.2.14 Radiation . . . . .	3-29
	3.2.15 Lead-based Paint . . . . .	3-30
	3.2.16 Medical Waste . . . . .	3-30
	3.2.17 Unexploded Ordnance . . . . .	3-30
	3.2.18 National Environmental Policy Act (NEPA) . . . . .	3-30
	3.2.19 Air Emissions . . . . .	3-30
3.3	Status of Natural and Cultural Resources Programs . . . . .	3-31
	3.3.1 Vegetation . . . . .	3-31
	3.3.2 Wildlife . . . . .	3-31
	3.3.3 Wetlands and Floodplains . . . . .	3-32
	3.3.4 Designated Preservation Areas . . . . .	3-32
	3.3.5 Rare, Threatened and Endangered Species . . . . .	3-33
	3.3.6 Cultural Resources . . . . .	3-33
	3.3.7 Other Resources . . . . .	3-33
3.4	Environmental Condition of Property . . . . .	3-34
	3.4.1 CERFA Parcels . . . . .	3-37
	3.4.2 CERFA Parcels with Qualifiers . . . . .	3-37
	3.4.3 CERFA Disqualified Parcels . . . . .	3-37
	3.4.4 CERFA Excluded Parcels . . . . .	3-37
	3.4.5 Suitability of Installation Property for Transfer by Deed . . . . .	3-37
3.5	Status of Community Involvement . . . . .	3-39
4	<b>INSTALLATION-WIDE STRATEGY FOR ENVIRONMENTAL RESTORATION . . . . .</b>	<b>4-1</b>
4.1	Zone/OU Designation and Strategy . . . . .	4-2
	4.1.1 Zone Designations . . . . .	4-2
	4.1.2 OU Designations . . . . .	4-2
	4.1.3 Sequence of OUs . . . . .	4-5
	4.1.3.1 Sequencing Strategy . . . . .	4-5
	4.1.3.2 Remediation Timelines and Documents. . . . .	4-6
	4.1.4 Environmental Restoration Early Actions Strategy . . . . .	4-10
	4.1.5 Remedy Selection Approach . . . . .	4-11



# TABLE OF CONTENTS

Continued

Chapter		Page No.
4.2	Compliance Strategy . . . . .	4-12
4.2.1	Storage Tanks . . . . .	4-12
4.2.1.1	USTs . . . . .	4-12
4.2.1.2	ASTs . . . . .	4-13
4.2.2	Hazardous Substances Management . . . . .	4-13
4.2.3	Hazardous Waste Management . . . . .	4-13
4.2.4	Solid Waste Management . . . . .	4-14
4.2.5	Polychlorinated Biphenyls (PCBs) . . . . .	4-14
4.2.6	Asbestos . . . . .	4-14
4.2.7	Radon . . . . .	4-15
4.2.8	RCRA Facilities . . . . .	4-15
4.2.9	Wastewater Discharges . . . . .	4-15
4.2.10	Oil/Water Separators . . . . .	4-15
4.2.11	Pollution Prevention . . . . .	4-15
4.2.12	NRC Licensing . . . . .	4-15
4.2.13	Mixed Waste . . . . .	4-16
4.2.14	Radiation . . . . .	4-16
4.2.15	Lead-Based Paint . . . . .	4-16
4.2.16	Medical Waste . . . . .	4-16
4.2.17	Unexploded Ordnance . . . . .	4-16
4.2.18	National Environmental Policy Act (NEPA) . . . . .	4-16
4.2.19	Air Emissions . . . . .	4-16
4.3	Natural and Cultural Resources Strategy(ies) . . . . .	4-17
4.3.1	Vegetation . . . . .	4-17
4.3.2	Wildlife . . . . .	4-17
4.3.3	Wetlands and Floodplains . . . . .	4-17
4.3.4	Designated Preservation Areas . . . . .	4-17
4.3.5	Rare, Threatened and Endangered Species . . . . .	4-17
4.3.6	Cultural Resources . . . . .	4-17
4.3.7	Other Resources . . . . .	4-18
4.4	Community Involvement/Strategy . . . . .	4-18
5	<b>ENVIRONMENTAL PROGRAM MASTER SCHEDULES . . . . .</b>	<b>5-1</b>
5.1	Environmental Restoration Program . . . . .	5-1
5.1.1	Response Schedules . . . . .	5-1
5.1.2	Requirements by Fiscal Year . . . . .	5-1
5.2	Compliance Programs . . . . .	5-1
5.2.1	Master Compliance Schedules . . . . .	5-7
5.2.2	Requirements by Fiscal Year . . . . .	5-7

# TABLE OF CONTENTS

Continued

Chapter		Page No.
5.3	Natural and Cultural Resources . . . . .	5-7
5.3.1	Natural and Cultural Resources Schedule(s) . . . . .	5-7
5.3.2	Requirements by Fiscal Year . . . . .	5-7
5.4	Meeting Schedule . . . . .	5-7
6	<b>TECHNICAL AND OTHER ISSUES TO BE RESOLVED . . . . .</b>	6-1
6.1	Information Management . . . . .	6-1
6.1.1	BCT Action Items . . . . .	6-1
6.1.2	Rationale . . . . .	6-1
6.1.3	Status/Strategy . . . . .	6-2
6.2	Data Usability . . . . .	6-3
6.2.1	BCT Action Items . . . . .	6-3
6.2.2	Rationale . . . . .	6-3
6.2.3	Status/Strategy . . . . .	6-3
6.3	Data Gaps . . . . .	6-4
6.3.1	BCT Action Items . . . . .	6-4
6.3.2	Rationale . . . . .	6-4
6.3.3	Status/Strategy . . . . .	6-4
6.4	Background Levels . . . . .	6-4
6.4.1	BCT Action Items . . . . .	6-4
6.4.2	Rationale . . . . .	6-4
6.4.3	Status/Strategy . . . . .	6-4
6.5	Risk Assessments . . . . .	6-5
6.5.1	BCT Action Items . . . . .	6-5
6.5.2	Rationale . . . . .	6-5
6.5.3	Status/Strategy . . . . .	6-5
6.6	Installation-wide RA Strategy . . . . .	6-6
6.6.1	BCT Action Items . . . . .	6-6
6.6.2	Rationale . . . . .	6-6
6.6.3	Status/Strategy . . . . .	6-6
6.7	Interim Monitoring of Groundwater and Surface Water . . . . .	6-8
6.7.1	BCT Action Items . . . . .	6-8
6.7.2	Rationale . . . . .	6-9
6.7.3	Status/Strategy . . . . .	6-9
6.8	Excavation of Contaminated Materials . . . . .	6-10
6.8.1	BCT Action Items . . . . .	6-10
6.8.2	Rationale . . . . .	6-10
6.8.3	Status/Strategy . . . . .	6-10



# TABLE OF CONTENTS

Continued

Chapter	Page No.
6.9	Protocols for Remedial Design Reviews . . . . . 6-10
6.9.1	BCT Action Items . . . . . 6-11
6.9.2	Rationale . . . . . 6-11
6.9.3	Status/Strategy . . . . . 6-11
6.10	Conceptual Models . . . . . 6-11
6.10.1	BCT Action Items . . . . . 6-11
6.10.2	Rationale . . . . . 6-11
6.10.3	Status/Strategy . . . . . 6-11
6.11	Cleanup Standards . . . . . 6-12
6.11.1	BCT Action Items . . . . . 6-12
6.11.2	Rationale . . . . . 6-12
6.11.3	Status/Strategy . . . . . 6-13
6.12	Initiatives for Accelerating Cleanup . . . . . 6-14
6.12.1	BCT Action Items . . . . . 6-14
6.12.2	Rationale . . . . . 6-14
6.12.3	Status/Strategy . . . . . 6-14
6.13	RAs . . . . . 6-15
6.13.1	BCT Action Items . . . . . 6-15
6.13.2	Rationale . . . . . 6-15
6.13.3	Status/Strategy . . . . . 6-16
6.14	Review of Selected Technologies for Application of Expedited Solutions . 6-16
6.14.1	BCT Action Items . . . . . 6-16
6.14.2	Rationale . . . . . 6-16
6.14.3	Status/Strategy . . . . . 6-16
6.15	Hot Spot Removals . . . . . 6-17
6.15.1	BCT Action Items . . . . . 6-17
6.15.2	Rationale . . . . . 6-17
6.15.3	Status/Strategy . . . . . 6-17
6.16	Identification of Clean Properties . . . . . 6-17
6.16.1	BCT Action Items . . . . . 6-17
6.16.2	Rationale . . . . . 6-17
6.16.3	Status/Strategy . . . . . 6-18
6.17	Overlapping Phases of the Cleanup Process . . . . . 6-19
6.17.1	BCT Action Items . . . . . 6-19
6.17.2	Rationale . . . . . 6-19
6.17.3	Status/Strategy . . . . . 6-19

# TABLE OF CONTENTS

Continued

Chapter	Page No.
6.18 Improved Contracting Procedures . . . . .	6-19
6.18.1 BCT Action Items . . . . .	6-19
6.18.2 Rationale . . . . .	6-20
6.18.3 Status/Strategy . . . . .	6-20
6.19 Interfacing with the Community Reuse Plan . . . . .	6-20
6.19.1 BCT Action Items . . . . .	6-20
6.19.2 Rationale . . . . .	6-20
6.19.3 Status/Strategy . . . . .	6-20
6.20 Bias for Cleanup Instead of Studies . . . . .	6-21
6.20.1 BCT Action Items . . . . .	6-21
6.20.2 Rationale . . . . .	6-21
6.20.3 Status/Strategy . . . . .	6-21
6.21 Expert Input on Contamination and Potential RAs . . . . .	6-21
6.21.1 BCT Action Items . . . . .	6-21
6.21.2 Rationale . . . . .	6-21
6.21.3 Status/Strategy . . . . .	6-21
6.22 Generic Remedies . . . . .	6-22
6.22.1 BCT Action Items . . . . .	6-22
6.22.2 Rationale . . . . .	6-22
6.22.3 Status/Strategy . . . . .	6-22
6.23 Partnering (Using Innovative Management, Coordination, and Communication Techniques) . . . . .	6-22
6.23.1 BCT Action Items . . . . .	6-22
6.23.2 Rationale . . . . .	6-22
6.23.3 Status/Strategy . . . . .	6-23
6.24 Updating the CERFA Report and Natural/Cultural Resources Documentation . . . . .	6-23
6.24.1 BCT Action Items . . . . .	6-23
6.24.2 Rationale . . . . .	6-23
6.24.3 Status/Strategy . . . . .	6-23
6.25 Implementing the Policy for On-Site Decision Making . . . . .	6-23
6.25.1 BCT Action Items . . . . .	6-24
6.25.2 Rationale . . . . .	6-24
6.25.3 Status/Strategy . . . . .	6-24
6.26 Structural and Infrastructure Constraints to Reuse . . . . .	6-24
6.26.1 BCT Action Items . . . . .	6-24
6.26.2 Rationale . . . . .	6-24
6.26.3 Status/Strategy . . . . .	6-24
6.27 Other Technical Reuse Issues to be Resolved . . . . .	6-24

# TABLE OF CONTENTS

Continued

Chapter	Page No.
7 PRIMARY REFERENCES .....	7-1

## Comments

## Appendices

Appendix A	Fiscal Year Funding Requirements/Costs
Appendix B	Installation Environmental Restoration Documents Summary Tables
Appendix C	Decision Document/ROD Summaries
Appendix D	No Further Response Action Planned (NFRAP) Summaries
Appendix E	Conceptual Site Model Data Summaries
Appendix F	Other Ancillary BCP Materials
-	Sample RAB Fact Sheet
-	Table F-1 BCP Distribution List
-	Table F-2 DPW In-House Asbestos Abatement
-	Natural Resources Correspondence
-	Applicable or Relevant and Appropriate Requirements
-	Figures F-2 through F-10, OUs at Cameron Station
-	Summary of Environmental Justice Issues at Cameron Station
-	Figures F-11 and F-12, Poverty and Minority Distribution Surrounding Cameron Station
-	Figure 3-3, Suitable Property for Transfer



# TABLE OF CONTENTS

Continued

## LIST OF FIGURES

Figure		Page No.
Figure 1-1	General Location of Cameron Station . . . . .	1-7
Figure 1-2	Surrounding Off-Post Land Use . . . . .	1-11
Figure 1-3	Location of Past Hazardous Substance and POL Activities . . . . .	1-19
Figure 2-1	Disposal and Reuse Parcels . . . . .	2-5
Figure 3-1	Environmental Restoration Sites, and OUs Currently Under Investigation . . . . .	3-11
Figure 3-2	Environmental Condition of Property . . . . .	3-35
Figure 4-1	Sequence and Primary Document Timeline for Operable Units . . . . .	4-7
Figure 5-1	Projected Master Restoration Schedule . . . . .	5-3
Figure 5-2	Projected Master Schedule for Mission/Operational-Related Compliance Programs . . . . .	5-9
Figure 5-3	Projected Master Schedule for Closure-Related Compliance Programs . . . . .	5-13
Figure 5-4	Projected Schedule for Natural and Cultural Resources Activities . . . . .	5-17

## LIST OF TABLES

Table		Page No.
Table ES-1	BCT/Project Team Action Items . . . . .	ES-4
Table 1-1	Current BCT/Project Team Members . . . . .	1-5
Table 1-2	Property Acquisition Summary . . . . .	1-14
Table 1-3	History of Installation Operations . . . . .	1-15
Table 1-4	Hazardous Substance Activity Areas at Cameron Station . . . . .	1-17
Table 1-5	Hazardous Waste Generating Activities . . . . .	1-21
Table 1-6	On-Post Tenant Units . . . . .	1-22
Table 2-1	Reuse Parcel Data Summary . . . . .	2-3
Table 2-2	Existing Legal Agreements/Interim Leases . . . . .	2-10
Table 3-1	Preliminary Location Summary . . . . .	3-3
Table 3-2	Environmental Restoration Site/Study Area Summary . . . . .	3-9
Table 3-3	Environmental Restoration Early Action Status . . . . .	3-13
Table 3-4	Mission/Operational-Related Compliance Projects . . . . .	3-15
Table 3-5	Closure-Related Compliance Projects . . . . .	3-16
Table 3-6	Compliance Early Action Status . . . . .	3-17
Table 3-7	Environmental Compliance Permits, Licenses, Notifications and Registrations . . . . .	3-19
Table 3-8	Underground Storage Tank Inventory . . . . .	3-20

# TABLE OF CONTENTS

Continued

## LIST OF TABLES

Table		Page No.
Table 4-1	Relationship Between Restoration Sites, OUs, and Parcels . . . . .	4-4
Table 4-2	Cleanup Sequence . . . . .	4-5
Table 4-3	Environmental Restoration Planned Early Actions . . . . .	4-10
Table 4-4	Environmental Compliance Planned Early Actions . . . . .	4-12
Table 5-1	BCT Meeting Schedule . . . . .	5-19
Table 6-1	Future Land Use Risk Assessment for Development of Remedy Selections . . . . .	6-7
Table 6-2	Human Health Standards . . . . .	6-13
Table 6-3	Surface Water Standards . . . . .	6-14



## LIST OF ACRONYMS

ACM	Asbestos-containing Material
AHERA	Asbestos Hazard Emergency Response Act
AR	Army Regulation
ARAR	Applicable or Relevant and Appropriate Requirements
AREE	Areas Requiring Environmental Evaluation
AST	Aboveground Storage Tank
BATES	Biological Assessment of Threatened and Endangered Species
BCP	Cleanup Plan
BCT	Base Transition Coordinator
BCT	BRAC Cleanup Team
BEC	BRAC Environmental Coordinator
BRAC	Base Realignment and Closure
CAA	Clean Air Act
CAP	Corrective Action Plan
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERFA	Community Environmental Response Facilitation Act
CFR	Code of Federal Regulations
CWA	Clean Water Act
DA	Department of the Army
1,2-DCA	1,2-Dichloroethane
1,1-DCE	1,1-Dichloroethene
DD	Decision Document
DERA	Defense Environmental Restoration Account
DLA	Defense Logistics Agency
DoD	Department of Defense
DPW	Directorate of Public Works
DRMO	Defense Reutilization and Marketing Office
EA	Environmental Assessment
EIS	Environmental Impact Statement
ENPA	Enhanced Preliminary Assessment
EPCRA	Emergency Planning and Community Right-to-Know Act
FDA	Food and Drug Administration
FMMC	Fort Myer Military Community
FONSI	Finding of No Significant Impact
GIS	Geographic Information System
HQDA	Headquarters, Department of the Army
HUD	Housing and Urban Development
IRA	Interim Remedial Action
IRDMIS	Installation Restoration Data Management Information
IRP	Installation Restoration Program
LTM	Long-Term Monitoring
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal

# LIST OF ACRONYMS

Continued

MDW	Military District of Washington
mg/kg	Milligrams per kilogram
mg/L	Milligrams per liter
MSDS	Material Safety Data Sheet
MSL	Mean Sea Level
NEPA	National Environmental Policy Act
NFA	No Further Action
NFRAP	No Further Remedial Action Planned
NPDES	National Pollution Discharge Elimination System
NPL	National Priority List
NRC	Nuclear Regulatory Commission
NRHP	National Register of Historic Places
OSHA	Occupational Safety and Health Administration
OSWER	Office of Solid Waste and Emergency Response
OU	Operable Unit
P.L.	Public Law
PCB	Polychlorinated Biphenyl
pCi/L	PicoCuries per liter
PIRP	Public Involvement and Response Plan
POL	Petroleum, Oil and Lubricants
PP	Proposed Plan
PX	Post Exchange
QAPP	Quality Assurance Project Plan
RA	Remedial Action
RAB	Restoration Advisory Board
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RFI	RCRA Facility Investigation
RI/FS	Remedial Investigation/Feasibility Study
RMA	Resource Management Area
RMIS	Restoration Management Information System
ROD	Records of Decision
RPA	Resource Protection Areas
SARA	Superfund Amendments and Reauthorization Act
SCR	Site Characterization Report
SDWA	Safe Drinking Water Act
SPCC	Spill Prevention Control and Countermeasures
SWMU	Solid Waste Management Unit
TCE	Trichloroethylene
TERC	Total Environmental Restoration Contract
TPH	Total Petroleum Hydrocarbon
TSCA	Toxic Substances Control Act

## LIST OF ACRONYMS

Continued

USACE	U.S. Army Corps of Engineers
USAEC	U.S. Army Environmental Center
USAEHA	U.S. Army Environmental Hygiene Agency
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
UST	Underground Storage Tank
UXO	Unexploded Ordnance
VDEQ	Virginia Department of Environmental Quality
VPDES	Virginia Pollutant Discharge Elimination System



## BCP GLOSSARY OF TERMS

---

**Applicable or Relevant and Appropriate Requirement (ARAR).** Cleanup standards, standards of control, and other environmental protection requirements, criteria, or limitations promulgated in federal or state regulations that define remedial action requirements at CERCLA sites.

**Area Requiring Environmental Evaluation (AREE).** Individual site, multiple sites or program area identified through an environmental assessment or site investigation as a potential threat to human health or the environment which requires further investigation. Roughly synonymous with an Area of Concern (AOC).

**BRAC Cleanup Team (BCT).** Team formed to manage environmental programs for BRAC installations consisting of a U.S. Army installation representative, USEPA region representative, and state environmental agency representative.

**BRAC Environmental Coordinator (BEC).** U.S. Army representative of the BCT.

**Base Closure and Realignment Act (BRAC Act).** The Base Closure and Realignment Act of 1988 (P.L. 100-526, 102 Stat. 2623) (BRAC 88 or BRAC I) and the Defense Base Closure and Realignment Act of 1990 (P.L. 101-0510, 104 Stat. 1808) (BRAC 91, 93, 95) which legislated the closure or realignment of military bases.

**Base Transition Coordinator (BTC).** DoD representative who serves as the primary point of contact for the public at a BRAC installation and assists in disposal and reuse planning and coordination for the property.

**Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) (1980).** Otherwise known as Superfund; provides for liability, compensation, cleanup and emergency response for hazardous substances released to the environment. It was amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). Section 120 of CERCLA specifically addresses procedures to be followed for federal facilities investigation and cleanup including BRAC installations. Section 120(h) was amended by the Community Environmental Response Facilitation Act of 1992 (CERFA).

**Community Environmental Response Facilitation Act (CERFA).** Amendment to CERCLA which established new procedures for contamination assessment, remediation (cleanup), and regulatory agency notification and concurrence for federal facility closures. CERFA requires the U.S. Army to identify uncontaminated property; its primary goal is to accelerate the transfer of property that can be immediately reused and redeveloped. The USAEC prepared CERFA reports for all U.S. Army BRAC installations. Included in the report is an environmental condition of property map which classifies property in four categories, CERFA clean, excluded, qualified and disqualified.



# BCP GLOSSARY OF TERMS

Continued

**Community Relations Plan (CRP).** Formal plan for community relations activities at an NPL site (see Public Involvement and Response Plan).

**Corrective Measure Study (CMS).** Third phase of the RCRA corrective action program for a facility consisting of the identification of corrective action requirements and the evaluation and selection of appropriate remedies for these problems identified in the RFI. The CMA roughly equates to the FS and PP prepared for sites being investigated under CERCLA.

**Decision Document (DD).** Document which formalizes the selection of remedial actions which are to be implemented at the installation. DDs are prepared for installations not on the National Priorities List. The DD corresponds roughly to a Record of Decision (ROD) for an NPL site.

**Defense Environmental Restoration Account (DERA).** Defense Appropriations Act funding mechanism for the DERP IRP (except the BRAC IRP).

**Defense Environmental Restoration Program (DERP).** Program established in 1984 to promote and coordinate efforts for the evaluation and cleanup of contamination at Department of Defense (DoD) installations. The program currently includes: the Installation Restoration Program (IRP), under which DoD installation investigations and site cleanups are conducted; and Other Hazardous Waste (OWH) Operations, through which research, development and demonstration programs aimed at improving remediation technology and reducing DoD waste generation rates are conducted. DERP is managed centrally by the Office of the Secretary of Defense. SARA provides continuing authority for the Secretary of Defense to carry out this program in consultation with the USEPA and in compliance with CERCLA and SARA guidelines.

**Early Action.** Also called an interim action. Early actions are remedial actions taken to respond to an immediate site threat or take advantage of an opportunity to significantly reduce risk quickly. These actions are typically limited in scope and are followed by other OU actions that complete site restoration for the long-term. Examples of early or interim actions are construction of a temporary landfill cap, and removal of contaminated soil to prohibit contamination of groundwater.

**Environmental Assessment (EA).** Document prepared to evaluate the environmental impacts of a federal action in compliance with NEPA when an EIS may not be necessary. If the EA indicates that there may be negative impacts to the environment from the proposed action, an EIS is required. If no significant impact is identified in the EA, a Finding of No Significant Impact (FONSI) is documented and no further evaluation under NEPA is required.



# BCP GLOSSARY OF TERMS

Continued

**Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA).** Title III of SARA which requires certain facilities to coordinate emergency planning with local and regional authorities and prepare hazardous material inventory and release data (Tier I and II and Toxic Release Inventory Reports). Executive Order 12856 signed August 3, 1993 requires that federal facilities comply with EPCRA.

**Environmental Impact Statement (EIS).** Document required by the NEPA which examines major federal actions to determine their impact on the environment. Installation disposal and reuse actions require the preparation of NEPA documentation.

**Environmental Investigation/Alternatives Analysis (EI/AA).** Terminology used to describe RI/FS studies conducted at U.S. Army installations which are not on the NPL.

**Explanation of Significant Difference (ESD).** Document which identifies significant changes that are being made to a component of the remedial action remedy in a ROD or DD. If fundamental changes are made to the overall remedy they are documented in a ROD or DD amendment and not a ESD.

**Feasibility Study (FS).** CERCLA environmental restoration study undertaken to develop and evaluate options for remedial action. Generally performed concurrently with and using data gathered during the RI. The FS evaluates remedial action alternatives based on technical feasibility and cost effectiveness, regulatory requirements, public health effects, and environmental impact.

**Federal Facility Agreement (FFA).** Binding agreement between the party responsible for cleanup of a NPL site and the USEPA which formalizes the CERCLA procedures and schedules to be followed for the site.

**Federal Facility Site Restoration Agreement (FFSRA).** Binding agreement between the party responsible for cleanup of a non-NPL site and the lead state environmental agency which formalizes the CERCLA procedures and schedules to be followed for the site. The FFSRA equates to a FFA for an NPL site.

**Hazard Ranking System (HRS).** System established by the USEPA for evaluating contaminated sites based on the potential hazard posed to public health and the environment. The system uses PA/SI data to generate a score ranging from 0 to 100 for each installation or individual site evaluated. Installations with a score above 28.5 may be included on the NPL.

**Installation Restoration Data Management Information System (IRDMIS).** Database developed by the U.S. Army and maintained by the USAEC to manage sampling and analysis data generated at U.S. Army installations undergoing environmental investigation and restoration.



# BCP GLOSSARY OF TERMS

Continued

**Installation Restoration Program (IRP).** Program implemented under the DERP to investigate and remediate DoD installations. The IRP conforms with the NCP and CERCLA and applies guidelines promulgated by the USEPA. The IRP for active installations is funded by the DERA, the IRP for BRAC installations is funded through the Military Construction Act.

**National Hazardous Substances Pollution Contingency Plan (NCP).** Plan which provides the organizational structure and procedures for preparing for and responding to discharges of oil and releases of hazardous substances in accordance with CERCLA and the Clean Water Act (CWA). These procedures include the completion of a Preliminary Assessment, Remedial Investigation/Feasibility Study, Proposed Plan, Remedial Design and Remedial Action.

**National Environmental Policy Act (NEPA).** Act passed in 1970 to encourage the assessment of environmental impact in federal decision making processes. The Act requires the preparation of an EIS/EA for significant federal actions.

**National Pollution Discharge Elimination System (NPDES).** USEPA administered program authorized by the Clean Water Act (CWA) to monitor wastewater discharges to surface and groundwaters. NPDES elements include industrial and sanitary wastewater discharge permitting programs and storm water permitting programs.

**National Priority List (NPL).** Listing of CERCLA hazardous substance release sites scoring 28.5 or higher under the USEPA Hazard Ranking System. Such sites are first proposed for NPL listing. Following a public comment period, proposed NPL sites may be listed on the NPL or may be deleted from consideration for placement on the list. Regulatory oversight for CERCLA site restoration actions at NPL installations is provided by the USEPA. Such installations are required to enter into an FFA.

**No Further Response Action Planned (NFRAP).** Designation given to an AREE or IRP site when investigation (SI or RI/FS) results indicate site does not require remedial action or, after adequate remedial actions have been completed. NFRAP is synonymous with no further action (NFA).

**Operable Unit (OU).** Environmental restoration unit identified as part of the CERCLA environmental restoration process to aid in the development of a remedial action strategy for the installation. Operable units may address geographical portions of an installation, specific installation problems, initial phases of an action, sets of actions performed over time or concurrent actions located in different portions of the installation.

**Preliminary Assessment (PA).** The first phase of investigation in the CERCLA environmental restoration process. The PA consists of a review of existing information and site reconnaissance if appropriate, to determine areas requiring additional evaluation (AREEs).



# BCP GLOSSARY OF TERMS

Continued

**Proposed Plan (PP).** Document which identifies the preferred remedial action alternative for a site and which provides a brief summary of all of the alternatives studied in the detailed analysis phase of the RI/FS.

**Public Involvement and Response Plan (PIRP).** U.S. Army document which outlines the program established to inform the community of the IRP at an installation and provides for community involvement in the cleanup process. The PIRP is synonymous with the Community Relations Plan (CRP). A PIRP or CRP is required for NPL sites and may also be prepared for U.S. Army installations which are not on the NPL but are undergoing investigation under the active installation or BRAC IRP.

**RCRA Facility Assessment (RFA).** First phase of the RCRA corrective action program for a facility consisting of a records review and site inspection to gather information on releases at the facility. The RFA process includes an evaluation of SWMUs as well as preliminary determinations regarding the need for further investigation. The RFA roughly equates to the PA conducted under the CERCLA environmental program.

**RCRA Facility Investigation (RFI).** Second phase of the RCRA corrective action program for a facility conducted at installations where the RFA identified the need for further evaluation. The RFI consists of multimedia investigations conducted to characterize the extent of releases at the RCRA facility. The RFI roughly equates to the RI conducted under the CERCLA environmental restoration process.

**Record of Decision (ROD).** Document which formalizes the selection of remedial actions which are to be implemented at an NPL site. The ROD certifies that the remedy selection process was carried out in accordance with CERCLA and with the NCP. It describes the treatment, engineering, and institutional components of the remedial action and remediation goals. The ROD roughly equates to a DD for a non-NPL site.

**Remedial Action (RA).** Final phase of the CERCLA environmental restoration process during which the actual construction of the remedy or implementation phase of site cleanup occurs. When all phases of the remedial activity at the site have been completed in compliance with the terms of the ROD or DD the site can be designated NFRAP.

**Remedial Design (RD).** Engineering phase of the CERCLA environmental restoration process during which technical drawings and specifications are developed for the subsequent Remedial Action. These specifications are based upon the detailed description of the remedy and the cleanup criteria provided in the ROD or DD.



# BCP GLOSSARY OF TERMS

Continued

**Proposed Plan (PP).** Document which identifies the preferred remedial action alternative for a site and which provides a brief summary of all of the alternatives studied in the detailed analysis phase of the RI/FS.

**Public Involvement and Response Plan (PIRP).** U.S. Army document which outlines the program established to inform the community of the IRP at an installation and provides for community involvement in the cleanup process. The PIRP is synonymous with the Community Relations Plan (CRP). A PIRP or CRP is required for NPL sites and may also be prepared for U.S. Army installations which are not on the NPL but are undergoing investigation under the active installation or BRAC IRP.

**RCRA Facility Assessment (RFA).** First phase of the RCRA corrective action program for a facility consisting of a records review and site inspection to gather information on releases at the facility. The RFA process includes an evaluation of SWMUs as well as preliminary determinations regarding the need for further investigation. The RFA roughly equates to the PA conducted under the CERCLA environmental program.

**RCRA Facility Investigation (RFI).** Second phase of the RCRA corrective action program for a facility conducted at installations where the RFA identified the need for further evaluation. The RFI consists of multimedia investigations conducted to characterize the extent of releases at the RCRA facility. The RFI roughly equates to the RI conducted under the CERCLA environmental restoration process.

**Record of Decision (ROD).** Document which formalizes the selection of remedial actions which are to be implemented at an NPL site. The ROD certifies that the remedy selection process was carried out in accordance with CERCLA and with the NCP. It describes the treatment, engineering, and institutional components of the remedial action and remediation goals. The ROD roughly equates to a DD for a non-NPL site.

**Remedial Action (RA).** Final phase of the CERCLA environmental restoration process during which the actual construction of the remedy or implementation phase of site cleanup occurs. When all phases of the remedial activity at the site have been completed in compliance with the terms of the ROD or DD the site can be designated NFRAP.

**Remedial Design (RD).** Engineering phase of the CERCLA environmental restoration process during which technical drawings and specifications are developed for the subsequent Remedial Action. These specifications are based upon the detailed description of the remedy and the cleanup criteria provided in the ROD or DD.



# BCP GLOSSARY OF TERMS

Continued

**Proposed Plan (PP).** Document which identifies the preferred remedial action alternative for a site and which provides a brief summary of all of the alternatives studied in the detailed analysis phase of the RI/FS.

**Public Involvement and Response Plan (PIRP).** U.S. Army document which outlines the program established to inform the community of the IRP at an installation and provides for community involvement in the cleanup process. The PIRP is synonymous with the Community Relations Plan (CRP). A PIRP or CRP is required for NPL sites and may also be prepared for U.S. Army installations which are not on the NPL but are undergoing investigation under the active installation or BRAC IRP.

**RCRA Facility Assessment (RFA).** First phase of the RCRA corrective action program for a facility consisting of a records review and site inspection to gather information on releases at the facility. The RFA process includes an evaluation of SWMUs as well as preliminary determinations regarding the need for further investigation. The RFA roughly equates to the PA conducted under the CERCLA environmental program.

**RCRA Facility Investigation (RFI).** Second phase of the RCRA corrective action program for a facility conducted at installations where the RFA identified the need for further evaluation. The RFI consists of multimedia investigations conducted to characterize the extent of releases at the RCRA facility. The RFI roughly equates to the RI conducted under the CERCLA environmental restoration process.

**Record of Decision (ROD).** Document which formalizes the selection of remedial actions which are to be implemented at an NPL site. The ROD certifies that the remedy selection process was carried out in accordance with CERCLA and with the NCP. It describes the treatment, engineering, and institutional components of the remedial action and remediation goals. The ROD roughly equates to a DD for a non-NPL site.

**Remedial Action (RA).** Final phase of the CERCLA environmental restoration process during which the actual construction of the remedy or implementation phase of site cleanup occurs. When all phases of the remedial activity at the site have been completed in compliance with the terms of the ROD or DD the site can be designated NFRAP.

**Remedial Design (RD).** Engineering phase of the CERCLA environmental restoration process during which technical drawings and specifications are developed for the subsequent Remedial Action. These specifications are based upon the detailed description of the remedy and the cleanup criteria provided in the ROD or DD.



# BCP GLOSSARY OF TERMS

Continued

**Remedial Investigation (RI).** CERCLA environmental restoration process phase undertaken to determine the nature and extent of the problem represented by a release of CERCLA hazardous substances. The RI includes multimedia sampling, field studies, monitoring, data analysis and completion of a baseline risk assessment and ecological evaluation to determine the nature, extent, and impacts to the human health and environment from contaminants present at the site if no remedial action is taken.

**Resource Conservation and Recovery Act (RCRA).** Federal law introduced in 1976 as an amendment to the Solid Waste Disposal Act. RCRA consists of 9 subtitles including subtitles C, D, and I which outline management requirements for hazardous waste, solid waste and underground storage tanks containing petroleum products, respectively.

**Restoration Advisory Board (RAB).** Board which acts as a forum for discussion and exchange of cleanup information between the DoD installation representatives and the public at BRAC installations where property will be available for transfer. The RAB consists of DoD component, USEPA, state environmental agency, and local community representatives, and is jointly chaired by the BEC and a local community member.

**Site Inspection (SI).** CERCLA investigation conducted if a Preliminary Assessment indicates the need for further investigation. SIs routinely involve visual inspections and the collection and analysis of multimedia samples to evaluate the extent of the problem and to determine whether a more detailed study such as an RI/FS is necessary.

**Solid Waste Management Unit (SWMU).** Waste management unit at a RCRA facility from which hazardous constituents might migrate. SWMUs may include containers, tanks, surface impoundments, waste piles, land treatment units, landfills, incinerators and recycling units, and wastewater treatment units.

**Spill Prevention Control and Countermeasures (SPCC).** Actions taken by an installation to address potential releases of hazardous substances or petroleum products. A SPCC Plan which documents procedures established by an installation to effect these response actions may be required for an installation pursuant to the Clean Water Act, RCRA, or SARA.

**Superfund Amendments and Reauthorization Act (SARA).** Law and amendments to CERCLA which address liability, compensation, cleanup and emergency response for hazardous substance releases. Title III of SARA is the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA).

**Zone.** Geographically contiguous area amenable to investigation in an SI or RI as a single unit identified to organize installation field efforts, group data from multiple investigations, facilitate the development of conceptual site models, prepare detailed maps and otherwise manage investigation activities. Zones are different than OU response actions.



# EXECUTIVE SUMMARY

---

## **Introduction**

This Base Realignment and Closure (BRAC) Cleanup Plan (BCP) describes the status, management and response strategy, and action items related to Cameron Station's ongoing environmental restoration and associated compliance programs. These programs support full restoration of the installation property, which is necessary to meet the requirements for property disposal and reuse activities associated with the closure of the installation.

The scope of the BCP considers the following regulatory mechanisms: the BRAC Act; National Environmental Policy Act (NEPA); Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as amended by the Community Environmental Response Facilitation Act (CERFA); Resource Conservation and Recovery Act (RCRA); and other applicable laws.

The Cameron Station BCP is a dynamic planning document which was developed by a BRAC Cleanup Team (BCT) consisting of U.S. Army, U.S. Environmental Protection Agency Region III (USEPA), and State of Virginia Department of Environmental Quality (VDEQ) representatives. It was necessary to make certain assumptions and interpretations to develop the schedule and cost estimates provided in this plan. The BCP will be updated regularly to reflect the current status and strategies of remedial actions, compliance programs and disposal and reuse planning. This document is the second in a series of updates/modifications and represents conditions and strategies as of January 1995.

## **Status of Disposal, Reuse, and Interim Lease Process**

Cameron Station will officially close on September 30, 1995. The disposal planning process of Cameron Station is ongoing and involves three interrelated activities: the NEPA documentation process, development of a disposal plan, and development of a community reuse plan. The first two items are the responsibility of the U.S. Army. The third is the responsibility of the Task Force to Monitor the Closing of Cameron Station (also known as the Cameron Station Reuse Task Force), created by the City of Alexandria for the purpose of developing a plan for reuse and redevelopment of the installation.

These three disposal planning activities have been completed at Cameron Station. Cameron Station was included in the Comprehensive Base Realignment/Closure and Fort Belvoir Development Environmental Impact Statement (EIS) completed in August 1991. The EIS evaluated the environmental and socioeconomic impacts associated with the closure of Cameron Station, and the closure/realignment and development of several other installations including Fort Belvoir, Fort McNair, Fort Devens, Fort Meade, Fort Myer, Fort Holabird and the U.S. Army



Materials Technology Laboratory. In addition, the U.S. Army Corps of Engineers (USACE), Baltimore District, released the Disposal and Reuse Environmental Assessment (EA) for Cameron Station and an associated Finding of No Significant Impact (FONSI) in November 1993. This document evaluated the impacts of installation disposal and reuse and outlined various U.S. Army disposal alternatives for the installation.

The Task Force to Monitor the Closing of Cameron Station was established in March 1989. The Task Force completed a Reuse Plan for the installation in June 1990. The Reuse Plan calls for the creation of a coordinated development district consisting of commercial/retail, residential and open space/recreational use parcels. The Task Force has worked with the Alexandria City Council to rezone the Cameron Station property to facilitate implementation of the plan.

A Disposal Plan has been developed for Cameron Station by the USACE, Baltimore District. The plan incorporates U.S. Army BRAC disposal hierarchy requirements and community reuse planning goals outlined in the Cameron Station Reuse Plan.

To date, property disposal has not occurred at Cameron Station. Cameron Station has completed federal and McKinney Act screening and state and local screening. No federal facilities expressed interest in the property. Through the McKinney Act Process, providers for the homeless expressed interest in two buildings, Buildings 9 and 20.

The City of Alexandria has filed an application with the Department of Interior to acquire 63 acres of the installation (Reuse Parcels A and C) for open space and recreational use as outlined in the Cameron Station Reuse Plan. The remainder of the installation (Reuse Parcel B) is proposed for competitive public sale by the U.S. Army for mixed use development in keeping with the community reuse plan goals and recently proposed zoning changes. The USACE is preparing invitation for bid for public sale of this parcel.

### **Status of Environmental Restoration Program**

The IRP effort at Cameron Station was initiated in 1989 and has continued to the present. Cameron Station is not on the National Priority List (NPL). However, to insure that the restoration of Cameron Station is systematically and comprehensively addressed, the IRP at the installation is being guided by the CERCLA process. An Enhanced Preliminary Assessment (ENPA) was completed in October 1989 and a Preliminary Assessment (PA) Addendum was completed in March 1992. The ENPA and PA Addendum identified a number of areas requiring environmental evaluation (AREEs). A comprehensive Remedial Investigation/Feasibility Study (RI/FS) which addressed these AREEs was completed in February 1993. The RI identified 12 operable units (OUs) at the installation. Four of the OUs were recommended for no further action (NFA). Two of the OUs, (underground storage tank (UST) sites without evidence of significant release and asbestos-containing buildings) were recommended for further action under installation compliance programs. The remaining six OUs were evaluated in the installation FS. An installation-wide proposed plan was completed in June 1993. The plan identified the preferred remedial alternative for the six OUs addressed in the FS. Public comments were received on the plan and an installation-wide Decision Document (DD) for Cameron Station was



signed in June 1994. The DD summarized the findings of the RI/FS and formalized the selection of the remedial alternatives for the six OUs.

It has since been determined that there is no regulatory- or risk-based requirement for remedial action at OU 3, the former Cameron Station Landfill. The U.S. Army is in the process of amending the DD to indicate no further remedial action for this OU, closely following CERCLA procedures for ROD amendments.

To date, three OUs are in the remedial design (RD) stage. Five OUs have undergone RD and are undergoing remedial action (RA). A number of restoration-related compliance activities at Cameron Station have also been completed or are ongoing. These include PCB transformer removals, UST testing and removals, and asbestos abatement.

### **Key Restoration and Transferability Strategies and Schedules**

Cameron Station has shifted its focus from the activities of an active installation to compliance and restoration for disposal and reuse of the property. The BCP programs currently being implemented focus restoration activities towards final transfer of installation property. A comprehensive strategy to identify and implement appropriate remedial actions has been established. It fully considers regulatory requirements, any disposal guidelines and reuse goals of the local community. The strategy focuses on the identification and implementation of effective interim and early actions to mitigate risks to human health and the environment. Through the CERCLA RI/FS and installation-wide decision document process, the strategy also provides for the identification of appropriate, cost effective and integrated remedial actions, installation-wide. The BRAC Cleanup Team (BCT) is working with the Cameron Station environmental restoration project team to expedite the implementation of these remedial actions by accelerating schedules, overlapping remedial design phases and other innovative actions in order to restore Cameron Station and transfer the property as quickly as possible.

### **Summary of Current BRAC Cleanup Plan Action Items**

Table ES-1 provides a listing of recommendations and issues associated with environmental restoration, compliance, and technical/management action items that require further evaluation and implementation by the BCT/Project Team. Bottom up review program numbers specified in the Department of Defense (DoD) BCP Guidebook which relate to each action item are identified in the table. The status of each of these action items is also identified.

**TABLE ES-1. BCT/PROJECT TEAM ACTION ITEMS**

Action Item	Status			
	Program Review Item	In Progress	To Be Performed	Completed
<b>ENVIRONMENTAL RESTORATION ACTIVITIES</b>				
Review Off-Site Benzene/DCA Plume Monitoring Data	32	×		
Amend DD to reflect NFA for former landfill (OU 3)	15, 25	×		
Conduct monitoring of former landfill (OU 3)	12		×	
Install/maintain pump and treat system for solvent groundwater contamination plume (OU 5)	12		×	
Prepare/submit VDEQ water discharge permit for OU 5	12, 16	×		
Complete removal RAs for OU 1, 4, and 6	12	×		
Install/maintain soil vapor/groundwater pump and treatment systems for OU 8	12	×		
<b>COMPLIANCE ACTIVITIES</b>				
UST Management - Conduct installation-wide tank removal	7		×	
Hazardous Materials Management - Maintain MSDS sheets/inventory until closure	7	×		
- Conduct close-out surveys when U.S. Army components and tenants vacate facilities	7	×		
Hazardous Waste Management - Maintain 90-day storage area at Building 9 until installation closure	7	×		
- Conduct close-out surveys when U.S. Army components and tenants vacate facilities	7	×		
Solid Waste Management - Maintain solid waste disposal contract until installation closure	7	×		
Asbestos Management - Maintain asbestos in-place until closure	7	×		
- Complete OSHA inspections as required	7	×		
Wastewater Discharge Management - Maintain sanitary sewer permit	7	×		
- Monitor sanitary sewer discharges as required	7	×		
- Complete oil/water separator cleanouts as required	7	×		
Pollution Prevention Management - Maintain used oil, solvent, solid waste recycling programs	7	×		
- Implement pollution prevention programs during RD/RA	7	×		
Air Emissions Management - Obtain air permits requirement determination from VDEQ	7	×		



**TABLE ES-1. BCT/PROJECT TEAM ACTION ITEMS****Continued**

Action Item	Status			
	Program Review Item	In Progress	To Be Performed	Completed
<b>NEPA/NATURAL AND CULTURAL RESOURCE ACTIVITIES</b>				
Conduct NEPA determinations	7	×		×
Enforce "No Fishing" ban for Cameron Lake	16	×		
Monitor waterfowl at Cameron Lake	16	×		
<b>COMMUNITY RELATIONS ACTIVITIES</b>				
Maintain Restoration Advisory Board	14	×		
Maintain information repositories	14	×		
Conduct community outreach activities (site tours, fact sheets)	14	×		
<b>DISPOSAL PLANNING AND CERCLA 120(H)(3) ACTIVITIES</b>				
Coordinate with Real Estate to ensure that access, liability, and RA operation issues are addressed in real estate transfer documents	27, 32	×		
Prepare FOST(s)	27, 32		×	
Update Environmental Condition of Property and Property Suitable for Transfer Maps as RAs are implemented/completed	9, 28	×		
<b>MANAGEMENT AND ADMINISTRATIVE SUPPORT ACTIVITIES</b>				
Maintain environmental sampling data in IRDMIS	20, 21	×		
Maintain DENIX for information management and transfer	21	×		

**This page intentionally left blank.**



# CHAPTER 1

---

## ► INTRODUCTION AND SUMMARY ◀

The purpose of this Base Realignment and Closure (BRAC) Cleanup Plan (BCP) is to summarize the current status of the Cameron Station environmental restoration and associated environmental compliance programs. The BCP also presents a comprehensive strategy for implementing response actions at the installation which are necessary to protect human health and the environment. This implementation strategy integrates activities being performed under the BRAC Installation Restoration Program (IRP) and installation environmental compliance programs to support full restoration of Cameron Station.

This BCP is a dynamic planning document. It was necessary to make certain assumptions and interpretations to develop the schedule and cost estimates provided. As additional data become available, implementation strategies and cost estimates could be altered. Such changes will be reflected in future updates to the BCP. However, dramatic modifications are not expected because of the advanced stages of the restoration process at Cameron Station. This version of the BCP was prepared with information available as of January 1995.

Chapter 1 of the BCP presents the objectives of the environmental restoration program, explains the purpose of the BCP, introduces the Project Team formed to review the program, and provides a brief description and history of the installation.

Chapter 2 summarizes the current status of the Cameron Station property disposal planning process and describes the relationship of the disposal process to other environmental programs.

Chapter 3 summarizes the current status and past history of the Cameron Station IRP and associated environmental compliance programs, public involvement activities that have occurred to date, and the environmental condition of installation property.

Chapter 4 describes the installation-wide strategy for environmental restoration, including the strategies for dealing with each operable unit (OU) on the installation. This chapter also includes plans for managing installation compliance programs, natural resource programs, and community relations activities.

Chapter 5 provides master schedules of planned and anticipated activities to be performed throughout the duration of the environmental restoration program, including associated compliance activities.

Chapter 6 describes specific technical and/or administrative issues to be resolved and presents a strategy for resolving these issues.

Chapter 7 provides a list of primary references utilized in the preparation of the BCP.

The following appendices are included in this document:

- ▶ Appendix A which presents summary tables of past, current, and projected costs for the installation environmental restoration program.
- ▶ Appendix B which presents technical documents and data loading summary listings of previous environmental restoration program deliverables by program and by site.
- ▶ Appendix C which presents summaries of the Decision Documents (DDs) for each site or operable unit for which a remedial action (RA) was selected.
- ▶ Appendix D which presents summaries of the DD for each site or operable unit for which a no further action (NFA) decision has been made.
- ▶ Appendix E which presents working conceptual models for each OU for which a RA was selected.
- ▶ Appendix F which presents other ancillary materials relevant to the BCP including a BCP distribution list, a summary of issues related to environmental justice at Cameron Station, the current Fort Myer Directorate of Public Works (DPW) In-house Asbestos Abatement Status report, Natural Resource documents, an Applicable or Relevant and Appropriate Requirements (ARAR) listing, and figures depicting each of the installation OUs.

## **1.1 Environmental Response Objectives**

The Environmental Division for the Fort Myer Military Community (FMMC) is responsible for the management and overall implementation of environmental programs at Cameron Station. The U.S. Army Environmental Center (USAEC) has conducted Enhanced Preliminary Assessment (ENPA) and Remedial Investigation/Feasibility Study (RI/FS) investigations at the installation. Other environmental investigation, remedial design (RD), remedial action (RA) and compliance program support is provided by the U.S. Army Corps of Engineers (USACE), Baltimore District.

The BRAC Cleanup Team (BCT), installation, USAEC, and other supporting U.S. Army agencies combined objectives for the environmental restoration and compliance program at Cameron Station are as follows:

- ▶ Protect human health and the environment;
- ▶ Strive to meet reuse goals established by the U.S. Army and the community, consistent with legislation relevant to Cameron Station closure;
- ▶ Comply with existing statutes and regulations;



- ▶ Conduct all restoration activities in a manner consistent with Section 120 of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA); Virginia Underground Storage Tank (UST) regulations and other applicable regulations;
- ▶ Continue efforts to identify all potentially-contaminated areas and incorporate any new sites into the BCP process, as appropriate;
- ▶ Establish priorities for environmental restoration and restoration-related compliance activities so that property disposal and reuse goals can be met;
- ▶ Initiate selected removal actions to control, eliminate, or reduce risks to manageable levels;
- ▶ Continue to identify and map the environmental condition of installation property with the intent of identifying areas suitable for transfer by deed;
- ▶ Complete the environmental restoration process as soon as practicable for each OU, in an order of priority which takes into account both environmental concerns and redevelopment plans;
- ▶ Continue to consider future land use when characterizing risks associated with releases of hazardous substances, pollutants, contaminants, or hazardous wastes;
- ▶ Continue to develop, screen, and select RAs that reduce risks in a manner consistent with statutory requirements;
- ▶ Commence RAs for (1) environmental and (2) property disposal and reuse priority areas as soon as practicable;
- ▶ Advise the real estate arm of the USACE of property that is deemed suitable for transfer and properties that are not suitable for transfer because they are either not properly evaluated or pose an unacceptable human health or environmental risk;
- ▶ Conduct long-term RAs for groundwater and any necessary reviews to evaluate the progress of remediation; and
- ▶ Establish interim and Long-Term Monitoring (LTM) plans for other RAs as appropriate.

## **1.2 BCP Purpose, Updates, and Distribution**

This BCP presents, in summary fashion, the status of Cameron Station's environmental restoration and compliance programs and the comprehensive strategy for environmental restoration and restoration-related compliance activities. It lays out the response action approach

being implemented at the installation to support installation closure. In addition, it defines the status of efforts to resolve technical issues so that continued progress and implementation of scheduled activities can occur. The Cameron Station BCP Strategy and Schedule is designed to streamline and expedite the necessary response actions associated with Cameron Station in order to facilitate the earliest possible disposal and reuse activities.

This BCP is a "living document" and will be updated semi-annually, or more frequently if determined to be necessary. Updates of the BCP will be distributed to each member of the Cameron Station Project Team, as well as to additional individuals and addresses identified in the distribution list provided in Appendix F as Table F-1. In addition, the BRAC Environmental Coordinator (BEC) for Cameron Station will prepare updated attachments to the BCP and distribute them to the other BCT members for comment as needed.

### **1.3 BCT/Project Team**

The Cameron Station BCT has been established and is led by Kelly Koontz who is the BEC. Ms. Koontz represents the Post Commander. The two other BCT members are Remedial Project Managers from the U.S. Environmental Protection Agency (USEPA), Region III (Mark Stephens) and the Virginia Department of Environmental Quality (VDEQ) (Charley Banks).

The Cameron Station Project Team consists of the BCT and additional individuals whom the BCT selects to assist in the environmental restoration process at Cameron Station, including the Base Transition Coordinator, representatives from the USAEC, USACE, Fort Myer FMMC DPW Environmental Office, and others. The Project Team is led by the BEC. Project Team meetings are held regularly for the purpose of conducting periodic program reviews and reaching consensus on decisions with the USEPA and the VDEQ.

Table 1-1 lists the current Project Team members and specific roles and responsibilities. Other support staff who contribute in the areas of toxicology and risk assessment, legal, Resource Conservation and Recovery Act (RCRA) compliance, fate and transport, field support, ecological, etc. are not all listed. BCT and Project Team members may consult/coordinate with additional staff on an as-needed basis.

### **1.4 Installation Description and History**

This section provides a general description and historical summary of Cameron Station.

#### ***1.4.1 General Property Description***

Cameron Station is comprised of 164.5 acres within the City of Alexandria, Virginia and is located approximately 6 miles southwest of Washington, DC. Cameron Station is a sub-installation of the FMMC. Fort Myer is located in Arlington, Virginia. Figure 1-1 shows the general location of the installation. Cameron Station is situated in an urban area of Alexandria. The majority of the land adjacent to Cameron Station is used for industrial and commercial purposes. Mixed commercial and industrial developments border Cameron Station along its western and northwestern sections. Duke Street (Route 236) borders the installation to the

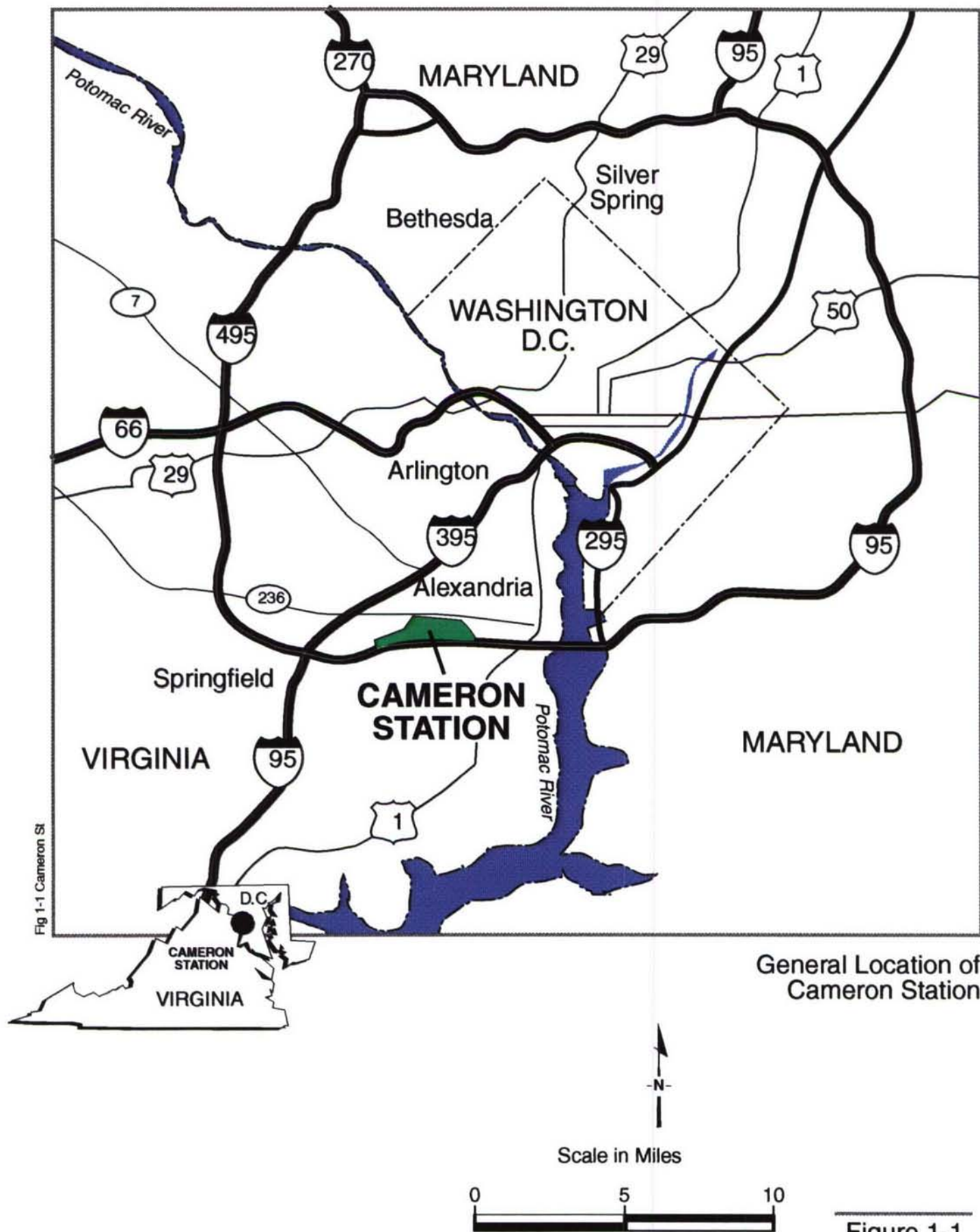


**TABLE 1-1. CURRENT BCT/PROJECT TEAM MEMBERS**

Name	Title	Phone	Role/Responsibility
Kelly Koontz	BRAC Environmental Coordinator, Military District of Washington	(202) 475-2061	Lead Agency Project Manager
Charley Banks	Remedial Project Manager, Virginia Department of Environmental Quality	(804) 762-4205	BCT
Mark Stephens	Remedial Project Manager, USEPA	(215) 597-1105	BCT
<b>OTHER KEY PARTICIPANTS</b>			
Alan Freed	Project Manager, U.S. Army Environmental Center (USAEC)	(410) 671-1628	USAEC Support on Environmental Studies
Edna Barber	Chief, Environmental Division, Fort Myer DPW	(703) 696-2010	Institutional knowledge of Cameron Station environmental programs
Connie Candelaria	Base Transition Coordinator, Cameron Station	(703) 274-6641	BRAC Clean Up Team
Gerry Bresee	Realty Specialist, Baltimore District Corps of Engineers	(410) 962-5173	Realty Specialist
Captain Chris Larsen	BRAC-ER Program Manager, Baltimore District Corps of Engineers	(410) 962-6784	RD/RA Project Manager
Susan Smullen	Public Affairs, Military District of Washington	(202) 475-0849	PAO Support
Captain Brian Dolan	Environmental Law Attorney, Judge Advocate General's Office, Military District of Washington	(205) 475-1710	U.S. Army Legal Support
Charlotte Rodriguez	Program Analyst, Military District of Washington	(202) 475-1823	MDW BRAC Officer
William J. Skrabak	Manager, Office of Environmental Quality, Alexandria Health Department	(703) 838-4850	Provides coordination with City of Alexandria
<b>CONTRACTORS</b>			
Argonne National Laboratory	-	(708) 252-5953	Pre-Assessment
Woodward-Clyde Federal Service	-	(301) 309-0800	RI/FS
EARTH TECH	-	(703) 549-8728	BCP



**This page intentionally left blank.**



Cameron Station, Virginia



northeast. Holmes Run and Backlick Run delineate Cameron Station's eastern and southern boundaries, respectively. These two streams converge at the southeastern corner of the installation to form Cameron Run. A Southern Railway right-of-way parallels Backlick Run and separates Cameron Station from Cameron Run Valley West, an industrial area located south of the installation. Several residential developments are located east and north of the installation. Figure 1-2 shows land use surrounding the installation.

Cameron Station has not been associated with weapons manufacture, chemical or heavy industrial activity. Currently, the primary mission of Cameron Station is to provide administrative support to the Commanding General of the Military District of Washington (MDW). Approximately 315 military personnel and 3,900 civilians are employed at Cameron Station. Operations at Cameron Station consist of administrative, commissary, and post exchange support functions. Service and storage facilities comprise about 40 percent of the total land use. Administrative offices and community groups make up about 26 percent and 11 percent of the installation land use, respectively. Recreation use of the installation covers 23 percent and medical use is less than 1 percent.

The 164-acre post includes 29 permanent buildings totaling 1,299,871 square feet, and four temporary buildings totaling 9,444 square feet. The primary structures on the installation include nine large buildings (Building 1 through 9), the main administration building (Building 15), the boiler plant (Building 21), the former Post Exchange (PX) Service Station (Building 23), engineering and maintenance shops (Buildings 10 and 17), and the former Four Season's Store (Building 20). Motor fuel is currently stored at the motor pool fuel depot (Building 68). Other MDW support functions at the installation include the operation of nine vehicle wash rack and maintenance shops (all within Building 9), a steam plant (Building 21), photographic laboratories, and grounds maintenance.

#### ***1.4.2 History of Installation***

The federal government first purchased the land that is now Cameron Station at the start of World War II and used the area as a general depot. The land was transferred to the MDW and redesignated as Cameron Station in 1950. Cameron Station became a U.S. Army installation in 1954 and continued to be used as a general depot until the early 1960s.

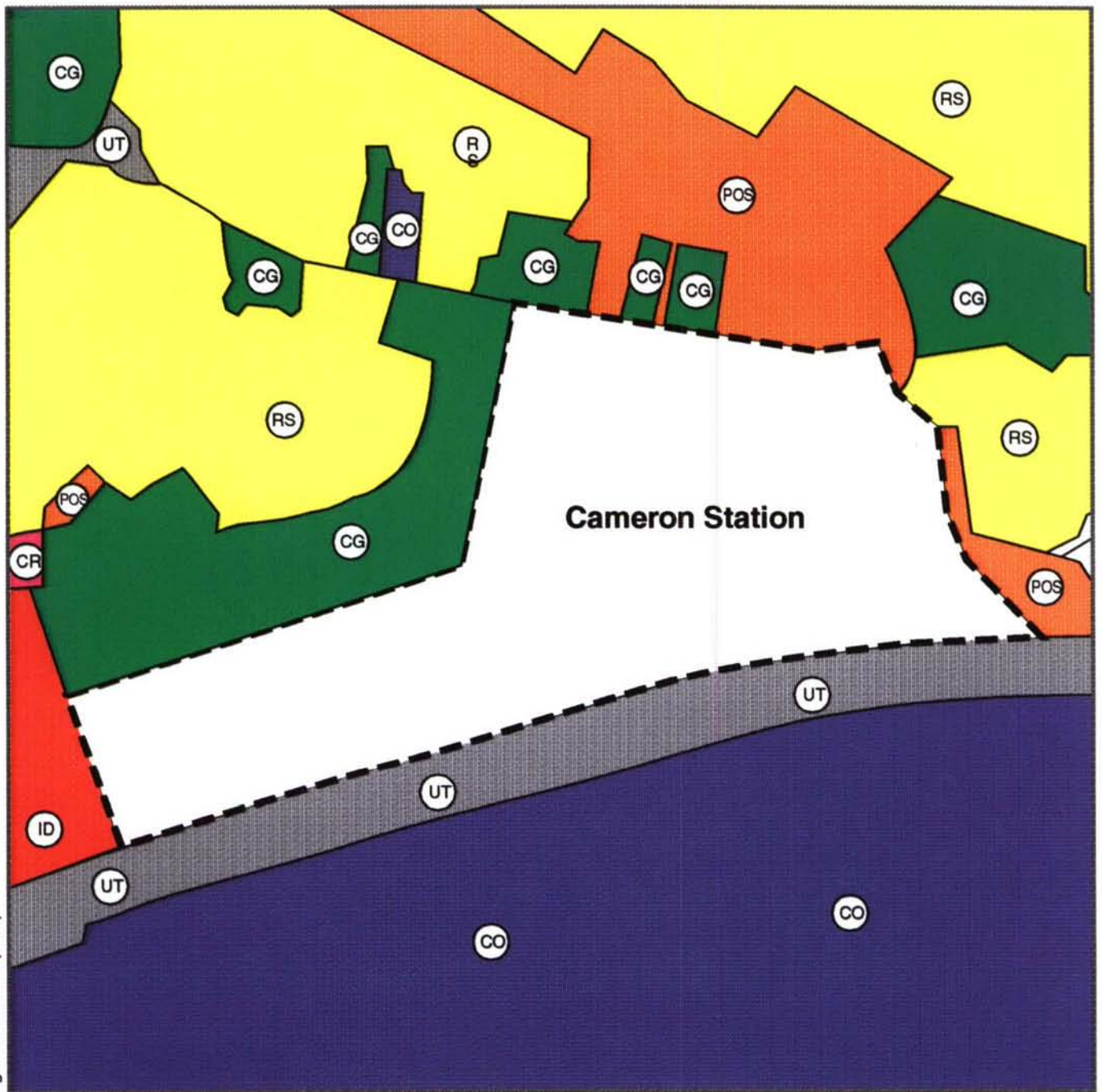
In 1962, the Defense Supply Agency, predecessor of the Defense Logistics Agency (DLA), was established at Cameron Station, and most of the warehouses were turned into offices or commissary and post exchange facilities. A number of industrial activities, including the motor pool and the paint and print shops, were moved to Cameron Station in 1971 when the MDW was reorganized.

BRAC I, enacted in 1988, identified Cameron Station as one of 86 Department of Defense (DoD) installations slated for closure. Closure was legislated to begin September 30, 1991 and be completed by September 30, 1995. Since the BRAC announcement, Cameron Station has continued its mission to support the MDW but has begun the process of closing the installation through the realignment and inactivation of some activities. All mission-related activities will be discontinued at the installation by the legislated closure date in September 1995.

**This page intentionally left blank.**



Fig 1-1 Cameron St (Color)



# EXPLANATION

-  Public Open Space and Recreation
-  Residential
-  Commerical General
-  Commercial Office
-  Commercial Residential Mixed
-  Industrial
-  Utilities and Services
-  Installation Boundary

Surrounding  
Off-Post  
Land Use

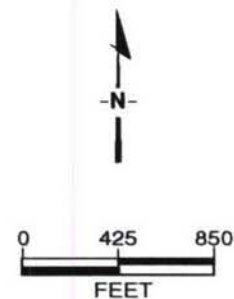


Figure 1-2

Cameron Station, Virginia

A property acquisition summary which outlines the real estate history of Cameron Station is provided in Table 1-2. Historical activities conducted at the installation are summarized by time period in Table 1-3.

## **1.5 Environmental Setting**

This section describes the environmental setting of Cameron Station, including topography, geology, hydrogeology, and surface water hydrology.

**Topography.** The land currently occupied by Cameron Station was originally farmland and wetlands. In the early 1940s, it was graded and filled with a variety of materials. The depth of the fill ranges from about 4 feet in the northwest area of the post to about 6 feet in the southeast. The elevation at the installation ranges from 45 to 85 feet above sea level. Topographic changes at Cameron Station are gradual with the highest elevations found in the northwest corner of the installation.

**Geology.** Cameron Station is located within the Atlantic Coastal Plain physiographic province which consists of an eastward - thickening wedge of sedimentary deposits. The geology underlying Cameron Station is a stratigraphic sequence of unidentified crystalline bedrock and saprolite, deposits of the undifferentiated Potomac Formation, fill material, and in some areas, recent alluvial deposits. The proximity of Cameron Station to the Cretaceous Potomac Formation Boundary and the Occoquan Granite Batholith suggests that the bedrock below Cameron Station is the Occoquan Granite. Based on information obtained from borings on the installation, the depth of saprolite at the site was found to vary from about 30 feet below grade in the northern portion, to at least 106 feet below grade near the southeastern corner. Interpretation of the data indicates that the saprolite surface strikes approximately northeast and dips steeply toward the southeast.

The soils at the installation are sandy silts with local mixtures of clay, which have been locally disturbed, graded and compacted by pedestrian traffic. These soils were formed from deposition of alluvium, gravel, sand, silt, and clay at Holmes and Backlick Runs.

**Hydrogeology.** Cameron Station is located near the center of the Cameron Run drainage basin. The basin, estimated to cover approximately 44 square miles, extends eastward from the Fall Line to the Potomac River, and is approximately 3 miles wide near the site. Much of the drainage basin, including the area in the vicinity of Cameron Station, is a potential recharge area for the lower Potomac Formation aquifers. RI data indicate the presence of a single unconfined aquifer under Cameron Station that transitions to a confined aquifer near the southeast corner of the site. The aquifer exhibits water elevations between 72 and 46 feet above mean sea level (MSL) with a generally southerly flow and localized easterly flow near the northern site boundary and western portion of the installation.

Located above the confined portion of this aquifer is a shallow, unconfined aquifer. Groundwater in this unconfined aquifer ranges from 10 to 20 feet below land surface. The shallow aquifer flow follows the installation topography towards nearby streams.



**TABLE 1-2. PROPERTY ACQUISITION SUMMARY**

Tract Number	Previous Land Owner	Acreage		
		Fee Land	Easement Land	Acquisition Date
1	Arthur H. Allen	0.57	NA	December 15, 1941
2	Basil Hixson, et ux	0.57	NA	February 3, 1942
3	William J. Shreeves, et ux	0.57	NA	December 15, 1941
4	Fred C. Michelbach, et ux	2.52	NA	November 21, 1941
5	Caroline I. Robinson Butler, et vir	20.56	NA	December 19, 1941
6	Woodrow E. Smith, et ux	0.86	NA	October 20, 1941
7	Floyd S. Deane, et ux	20.69	NA	December 5, 1941
8	Archie T. Lamm, et ux	2.00	NA	November 14, 1941
9	Southern Railway Company	118.00	NA	February 2, 1942
10	Jesse R. Harlowe, et al	1.48	NA	December 15, 1941
11	Claude Moore, et al	0.82	NA	April 3, 1951

**Key:** NA - Not Applicable

**TABLE 1-3. HISTORY OF INSTALLATION OPERATIONS**

Period	Type of Operation	Weapon System	Environmental Significant Activities	Map Reference (see Figure 1-3)
1942-1950	Washington Quartermaster General military depot, commissary, post exchange	None	Unavailable	--
1950-1954	MDW Depot commissary, post exchange	None	Unavailable	--
1954-1967	Cameron Station military depot, commissary, post exchange, warehouses	None	Fuel/oil storage, burn pits operation, vehicle fueling and motorpool operation, landfilling, dredge disposal, painting/printing, photo lab operations	1, 2, 3, 4, 5, 6, 7
1967-1971	Cameron Station military depot, commissary, post exchange, administration, warehouses	None	Fuel/oil storage, burn pits operation, vehicle fueling and motorpool operation, painting/printing, photo labs operation, drum storage, acid pits operation, maintenance shops operation	1, 2, 3, 6, 7, 8, 9, 10
1971-present	Cameron Station military depot, commissary, post exchange, administration, warehouses	None	Fuel/oil storage, vehicle fueling, dredge disposal, painting/printing, photo labs operation, drum storage, maintenance shops operation, oil/water separator operation	1, 3, 5, 6, 7, 8, 10, 11



The City of Alexandria discourages the use of groundwater as a drinking water supply. Potable water is currently supplied to the facility by the American Water Company of Alexandria through a single eight-inch pipe. The raw water source is Occoquan Creek. Two production wells provided water to the installation prior to connection with the water utility. The exact location of these wells is not known but they are believed to be off-site.

**Surface Water Hydrology.** Cameron Station is located within the Cameron Run Drainage Basin near the convergence of Holmes Run and Backlick Run. Over the years, most of the site has been changed hydrologically by regrading and construction of impervious surfaces. Currently, approximately 97 percent of the site is within the 100-year floodplain. Dominant surface water resources in the Cameron Station area are Backlick Run, Holmes Run, Cameron Run, and Cameron Lake. Backlick Run flows through a concrete flume along the southern border of the site, Holmes Run follows the eastern border of the site, and Cameron Run forms at their confluence near the southeast corner of Cameron Station.

Cameron Lake is located on the installation near the east gate and covers approximately 8 acres. The lake was created to serve as a stormwater detention pond. The depth of the lake ranges from less than one foot to about 9 feet, with an average of 3.4 feet, depending on drainage activities. Stormwater on the site is directed to Backlick Run either directly by drainage systems or indirectly by drainage to Cameron Lake. During peak storm events, Cameron Lake drains into Backlick Run at an outfall approximately 600 feet upstream from Cameron Run. Downstream, Cameron Run becomes Hunting Creek, which enters the Potomac River approximately 3.3 miles from Cameron Station.

## **1.6 Hazardous Substances and Waste Management Practices**

A variety of activities involving the handling of hazardous substances and petroleum, oil and lubricants (POL) have occurred at Cameron Station throughout its history. These activities include fuel oil storage and distribution, motor pool and service station operations, landfilling and dredging, paint and print shop operations and maintenance shop operations. Table 1-4 identifies these activities. Figure 1-3 identifies the various locations on the installation where these operations occurred. These activities are also highlighted by historical time period in Table 1-3.

Activities at Cameron Station have resulted in the generation of hazardous wastes including waste photo developing chemicals, waste paint, waste printing chemicals, waste solvents, waste pesticides/herbicides, used oil, antifreeze, gasoline and refrigerant. Table 1-5 outlines some of these hazardous and nonhazardous waste generating activities by building number and source operation and identifies their current disposition.

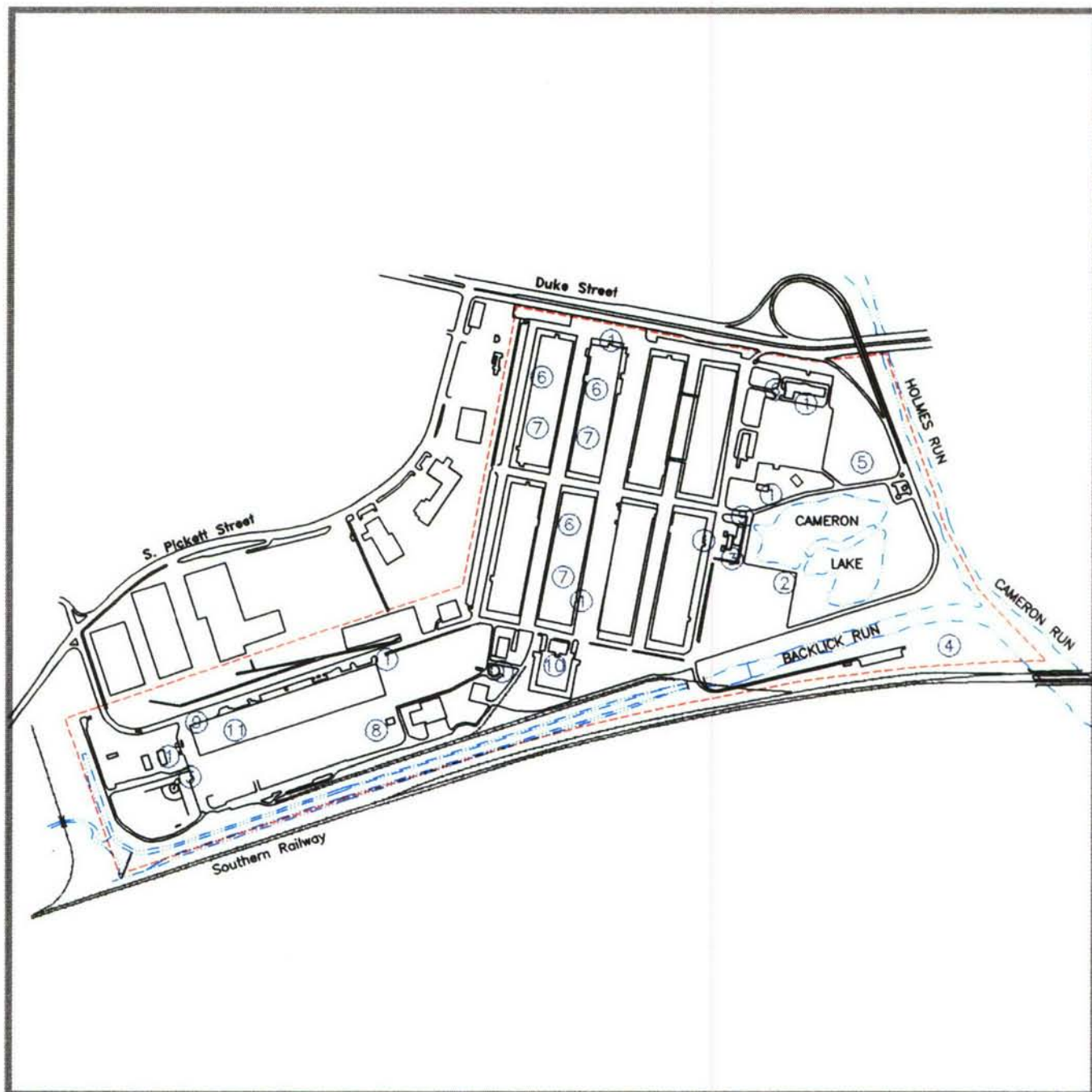
Recognized past waste disposal practices at Cameron Station have included the burning of solid wastes in two pits near Cameron Lake, disposal of battery acid generated at the motor pool and service stations in two acid pits and the disposal of print shop wastes via the sanitary sewer system. In addition, landfilling of the various combinations of solid wastes (primarily composed of residual debris from burn pits, dredged lake and stream sediments, and road construction material) has occurred at Cameron Station. These disposal practices no longer occur. Hazardous and solid wastes currently generated on-site are managed in accordance with all

**TABLE 1-4. HAZARDOUS SUBSTANCE ACTIVITY  
AREAS AT CAMERON STATION**

Hazardous Substance Activity	Map Reference (See Figure 1-3)
Fuel/Oil Storage	1
Burn Pits	2
Fuel Pumphouses	3
Landfill	4
Dredge Disposal Areas	5
Paint/Print Shops	6
Photo Labs	7
Drum Storage	8
Acid Pits	9
Maintenance Shops	10
Oil/Water Separator	11



**This page intentionally left blank.**



#### EXPLANATION

- ① Designation of Activity Location
- Installation Boundary

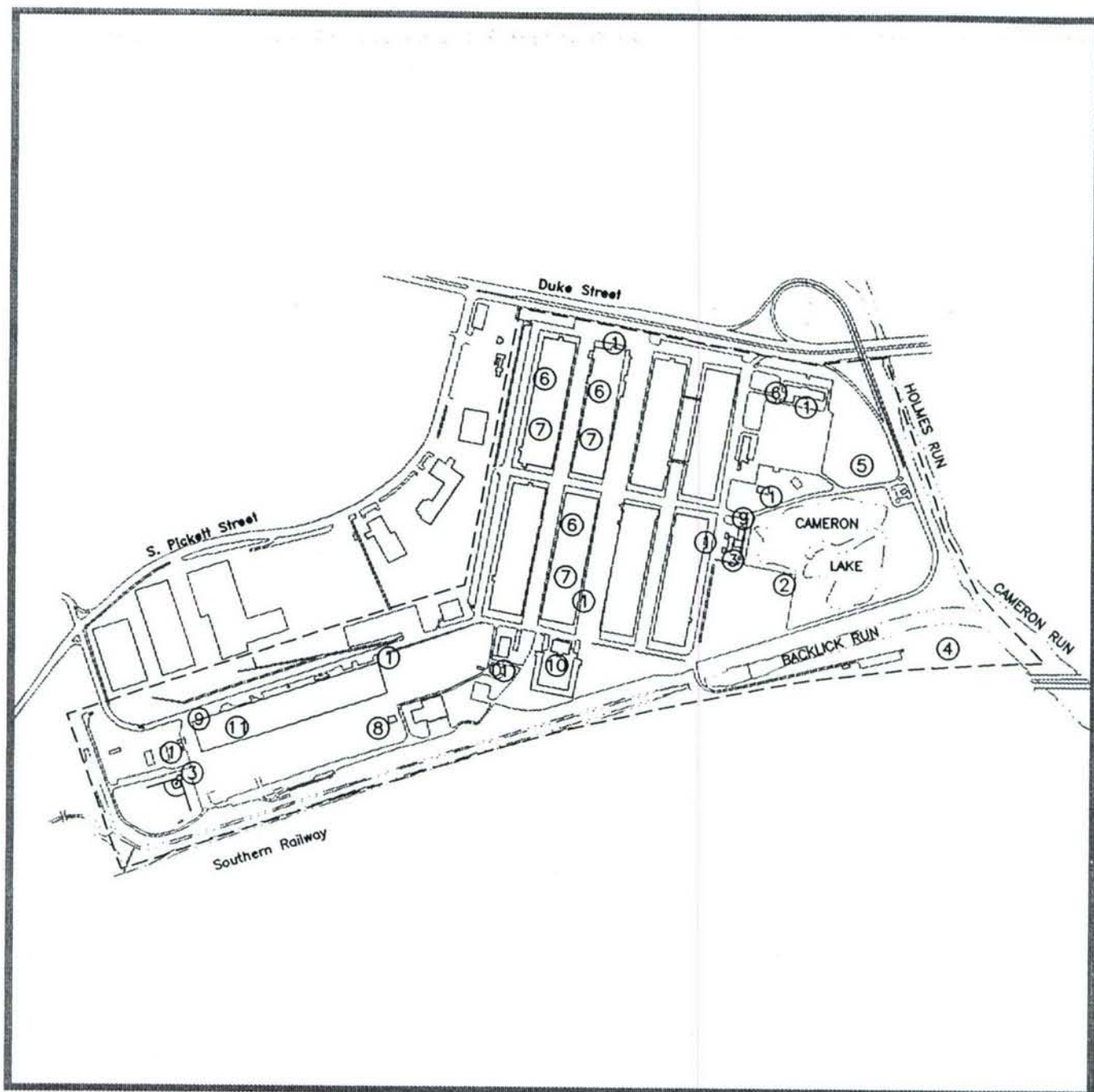
Location of Past  
Hazardous  
Substances and  
POL Activities



0 425 850  
FEET

Figure 1-3





#### EXPLANATION

- ① Designation of Activity Location
- Installation Boundary

Location of Past  
Hazardous  
Substances and  
POL Activities



0 425 850  
FEET

Figure 1-3

**This page intentionally left blank.**



**TABLE 1-5. HAZARDOUS WASTE GENERATING ACTIVITIES**

Facility	Activity	Name of Waste Material	Disposition
Building 2	Soldiers Magazine	Waste fixer D011	DRMO
Building 3	DLA Photo Lab	Waste fixer, developer bleach, D011	DRMO
Building 5	DLA DTIC	Waste ammonium hydroxide D002, waste fixer/developer non-regulated	DRMO
Building 6	Recruiting Support Command	Waste paint related material D001, waste photochemicals, not regulated	DRMO
Building 6	DLA Carpenter Shop	Waste paint related materials D001	NA
Building 7	DSSW Supply	Asbestos safes, waste paint related materials D001	DRMO
Building 9	Mobile Equipment	Used oil, antifreeze used (non-regulated) varsol parts cleaner D001	DRMO and Sparkie (Recycler)
Building 17	Refrigerator Shop	Used refrigerant non-regulated	DRMO
Building 10	Carpentry Shop	Waste paint regulated materials D001	DRMO
Building 21	Boiler Plant	Boiler blow down non-regulated chemicals	DRMO
Building 20	Four Seasons	Excess household chemicals	DRMO
Building 30	Pest Control Shop	Waste pesticides/herbicides	DRMO
Building 23	Former PX Gas Station	Waste gasoline from skimming operations	DRMO
Building 15	Institute of Heraldry	Waste photochemicals non-regulated	DRMO
Building 15	DSLOG	Waste printing chemicals for clean pressers	Navy

Key: NA - Not Available

applicable state and federal regulations and disposed off-site via licensed hazardous and solid waste vendors. Releases to the environment which have occurred from historical disposal practices are being effectively addressed through the installation's ongoing BRAC IRP.

### 1.7 Off-Post Property

There are no off-post properties currently owned by Cameron Station nor are there any anticipated in the future.

### 1.8 Tenant Units

There are no significant non-DoD tenants at Cameron Station. There are, however, a number of DoD tenants resident at the installation. Their main function has been to provide support to the DoD through commissary and post exchange operations. This includes "commercial" activities such as the operation of paint and print shops and photographic laboratories. There has been no significant industrial operations by tenants at Cameron Station. Table 1-6 lists the current tenant organizations on the installation.

**TABLE 1-6. ON-POST TENANT UNITS**

<b>Tenant</b>	<b>Building</b>
Defense Logistics Agency	3, 4, 5, 6, 8
Defense Contract Audit Agency	4
U.S. Army Recruiting Support Command	6
Navy Petroleum Office	T40
Defense Commissary Agency	4
Washington Area Exchange (to include Army and Air Force Exchange Service)	1, 6, 20
Defense Fuel Supply Center	8
Air Force Detachment #29-Aerospace Engineering	5
Genesis Federal Credit Union	2

Source: BEC, MDW.



# CHAPTER 2

## ► PROPERTY DISPOSAL AND REUSE PLAN ◀

This chapter describes the status of the disposal planning process at Cameron Station and the relationship between the disposal process and environmental programs at the installation. It also identifies property transfer methods being utilized or considered in the disposal process.

### 2.1 Status of Disposal Planning Process

BRAC I, enacted in 1988, identified Cameron Station for closure. Closure was legislated to begin September 30, 1991 and be completed by September 30, 1995. The U.S. Army has initiated the disposal process for the installation. This process involves three interrelated activities: development of a Community Reuse Plan, development of a disposal plan, and the National Environmental Policy Act (NEPA) process. This process is designed to integrate goals of both the U.S. Army and the City of Alexandria in order to provide for the efficient transfer of the Cameron Station mission within the U.S. Army and minimize the impact of closure on the community. Each of these activities have been completed and are outlined below.

**Reuse Plan.** The Task Force to Monitor the Closing of Cameron Station (also known as the Cameron Station Reuse Task Force) was established in March 1989 to represent the concerns of the City of Alexandria, and work with the DoD, the U.S. Army, and other federal agencies to develop a reuse plan for the facility. The Task Force issued a Reuse Plan in June 1990. The plan calls for the development of the 164.5-acre installation as a Coordinated Development District, divided into three reuse parcels. Reuse Parcel A consists of all lands east of First Street on the east side of the installation. Reuse Parcel C consists of an area with existing recreational facilities (tennis court and baseball field) at the west end of the installation. These two parcels which total 63 acres are proposed in the plan for public park and recreational purposes. The remaining parcel, Parcel B, is proposed in the plan for mixed use redevelopment. Two homeless provider applications have been approved for Cameron Station, one for Building 9 (1.864 acres) and the other for Building 20 (6.68 acres). Both of these properties are within Parcel B. The total Reuse Parcel B acreage for development is therefore 92.956 acres.

The reuse plan proposed that Parcel B be conveyed by the U.S. Army via competitive sale to the private sector. The open space/recreational use parcels (Parcels A and C) are proposed in the plan for no cost public benefit conveyance to the City of Alexandria through application with the Department of Interior. These reuse plans are consistent with the Master Plan, Alexandria, Virginia, Landmark/Van Dorn Small Area Plan completed in 1992, which includes the Cameron Station property.

**Disposal Plan.** A disposal plan has been developed for Cameron Station by the USACE, Baltimore District. The plan fully considers the reuse planning goals of the local community and incorporates U.S. Army BRAC disposal hierarchy requirements established by Public Law (P.L.) 100-526 and the Federal Property and Administration Services Act. This hierarchy



includes the following in the sequence provided: (1) Offer facility to DoD agencies for use; (2) Offer facility to other federal agencies; (3) Offer facility under Section 501 of the McKinney Act (excluding property taken by DoD agencies) to sponsoring organizations for the homeless; (4) Offer facility to state and local government agencies; and (5) Offer the property through competitive bid to the private sector. The Base Closure Community Redevelopment and Homeless Assistance Act of 1994, signed into law October 25, 1994, and Title XXIX of the 1995 Defense Authorization Act amended this process as pertains to homeless, state and local screening. These pieces of legislation exempt BRAC properties from screening under McKinney Act provisions. They do, however, require that the needs of the homeless be considered during the reuse planning process and be balanced with the need for further economic redevelopment. To accomplish this, the new process requires that screening for state, local, and homeless assistance needs be done at the local level by the local redevelopment authority.

**National Environmental Policy Act (NEPA) Documentation.** Cameron Station was included in the Comprehensive Base Realignment/Closure and Fort Belvoir Development Environmental Impact Statement (EIS) completed in August 1991. The goal of the realignment/closure EIS was to assess the impacts of the proposed closure of Cameron Station and other BRAC I realignment, closure and development activities at Fort Belvoir, Fort McNair, Fort Devens, Fort Meade, Fort Myer, Fort Holabird, and the U.S. Army Materials Technology Laboratory. Environmental factors such as land use, socioeconomic environment, utilities, hazardous materials and waste management, natural and cultural resources and others were evaluated in the EIS. Mitigation measures for impacts identified were proposed.

A Disposal and Reuse Environmental Assessment (EA) was prepared in June 1993 by the USACE, Baltimore District. This EA specifically addressed the impacts of the U.S. Army disposal of Cameron Station and the proposed reuse of the property. The EA considered the following two reuse alternatives:

- ▶ No Action; site, buildings and grounds would be left in caretaker status.
- ▶ Disposal and development of the property would occur as proposed in the Cameron Station Reuse Plan.

The EA found that the proposed disposal and reuse alternative for Cameron Station did not constitute a major federal action significantly affecting the human environment. A Finding of No Significant Impact (FONSI) was issued. The EA and FONSI were released to the public for comment on November 29, 1993 and became final on December 28, 1993.

Table 2-1 presents summary information on Reuse Parcels A, B, and C and an approximate timetable for transfer by deed of each parcel at Cameron Station based on the Cameron Station Disposal Plan and Community Reuse Plan. Figure 2-1 graphically portrays the three disposal and reuse parcels which have been designated for the installation.

The disposal process at Cameron Station is underway following Disposal Plan guidelines in a manner consistent with Community Reuse Plan goals. To date, the following has occurred:



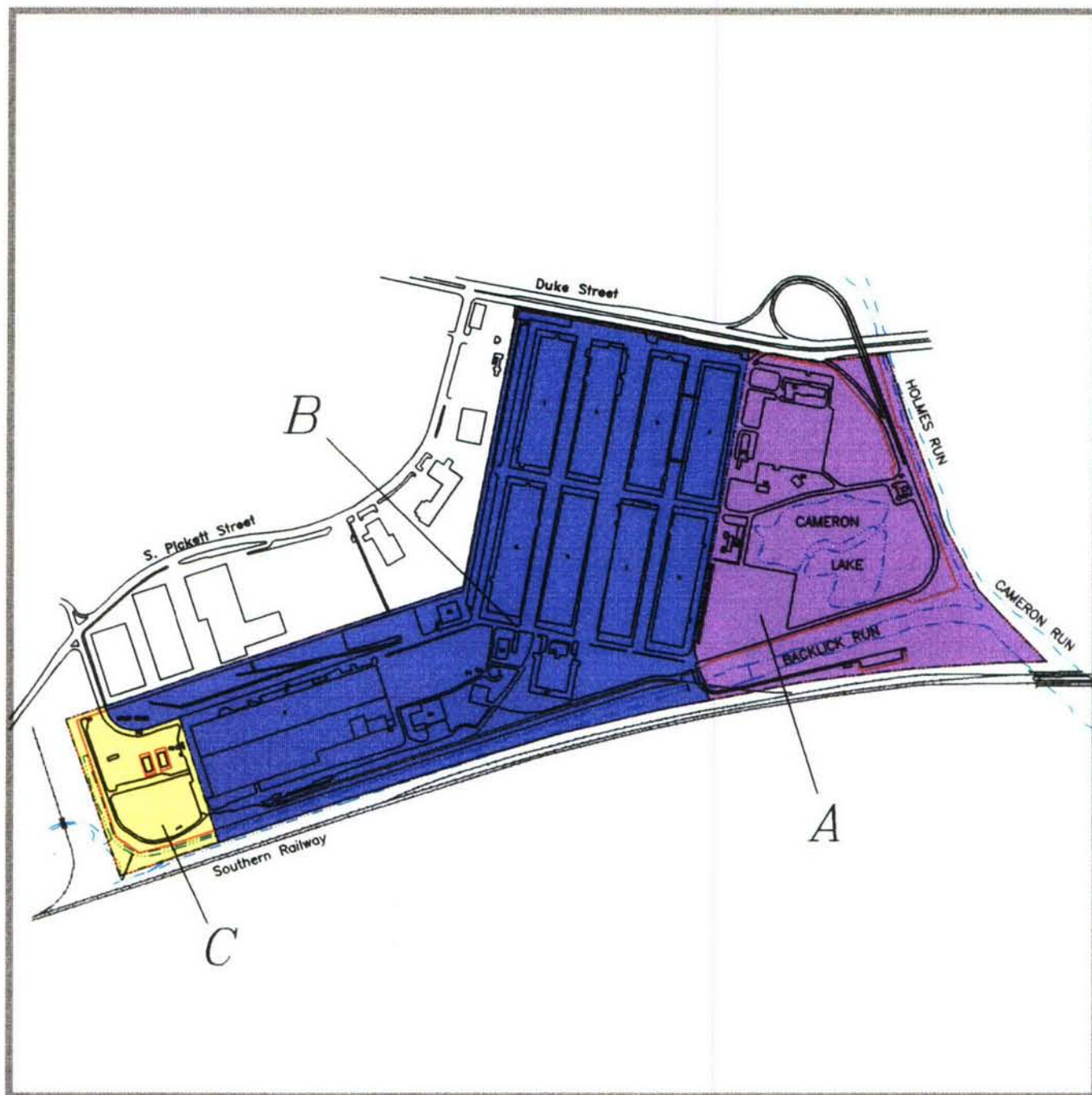
**TABLE 2-1. REUSE PARCEL DATA SUMMARY**

Reuse Parcel	Acres	Priority	Description and Proposed Reuse	Known Sites	Projected Transfer Date	Transfer Mechanism	Recipient*
A and C	63	Undetermined	All lands east of First Street on east side of installation (Reuse Parcel A) and area at west end of installation including tennis court and baseball field (Reuse Parcel C); will be open space/recreation	OUs 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12	April 1996	No-Cost Public Benefit Conveyance	City of Alexandria
B	92.956*	Undetermined	Offices, warehouses; will be residential	OUs 1, 4, 5, 7, 8, 9, 10, 11, 12	April 1996	Competitive Public Sale	Undetermined

\*Acreage does not include the properties within the Parcel Boundary, Building 9 (1.864 acres) and Building 20 (6.68 acres) which will be transferred to homeless providers.

**This page intentionally left blank.**





#### EXPLANATION

- Open Space/Recreation (Parcel A)
- Mixed Use Redevelopment (Parcel B)
- Open Space/Recreation (Parcel C)
- Installation Boundary
- Parcel Boundary

Disposal  
and  
Reuse  
Parcels



0 425 850  
FEET

Figure 2-1

- ▶ Federal Screening and McKinney Act Screening were completed in September 1992 and August 1994, respectively. No federal agencies expressed interest in the property. Providers for the homeless have been awarded Buildings 9 and 20.
- ▶ The Task Force has worked with the Alexandria City Council to rezone the Cameron Station Property in accordance with the City Coordinated Development District Zoning Ordinance to be consistent with reuse goals and to facilitate implementation of the reuse plan.
- ▶ State and local screening was completed in September 1994. The City of Alexandria has applied to the Department of Interior to acquire 63 acres of the surplus federal property for use as open space and recreation as proposed in the reuse plan (Parcels A and C).
- ▶ The U.S. Army is developing a bid package for the competitive sale and development of the remainder of the Cameron Station property (Parcel B). The bid package is expected to be issued in January 1995.

## 2.2 Relationship to Environmental Programs

Disposal and reuse activities at Cameron Station are intimately linked to environmental investigations, restoration, and compliance activities for two basic reasons:

- ▶ Federal property transfers to nonfederal parties are governed by CERCLA Section 120(h)(3)(B)(i).
- ▶ Residual contamination may remain on certain properties after remedial actions have been completed or put into place, thereby restricting the future use of those properties.

CERCLA Section 120(h)(3)(B)(i) requires deeds for federal transfer of previously contaminated property to contain a covenant that all remedial actions necessary to protect human health and the environment have been taken. CERCLA also requires that deeds for property on which a hazardous substance was stored for more than one year, released or disposed, include information on the type, quantity, and the time at which the storage or release occurred. CERCLA provided clarification to the phrase "has been taken." This clarification states that all remedial action has been taken if the construction and installation of an approved remedial design has been completed, and the remedy has been demonstrated to the Administrator to be operating properly and successfully. It further states that the carrying out of long-term pumping and treating, or operation and maintenance, after the remedy has been demonstrated to the Administrator to be operating properly and successfully, does not preclude the transfer of the property. Thus, any required remedial and/or removal response actions must be selected and implemented for such contaminated properties before transfers to private parties can occur.

The requirement for complying with CERCLA 120(h), the possibility of residual contamination at the installation, and the remediation of the site based on future use are factored into the



property disposal and reuse process at Cameron Station. This is accomplished in the following manner:

- ▶ Cameron Station has experienced releases of CERCLA hazardous materials and is subsequently subject to CERCLA transfer restrictions as described above.
- ▶ The BRAC IRP at Cameron Station utilizes an investigative and restoration process modeled after the CERCLA process for National Priority List (NPL) sites. This process includes the conduct of a RI risk assessment based on future land use. The Reuse Plan prepared by the Task Force to Monitor the Closing of Cameron Station and Disposal and Reuse EA identify the future land use scenarios at Cameron Station.
- ▶ Cameron Station is well along in the IRP. The installation RI and associated risk assessment evaluated human health and ecological impacts at each site based on reuse scenarios which are consistent with those presented in the community reuse plan and the Disposal and Reuse EA. The baseline risk assessment considered human health and ecological impacts of current and potential onsite and offsite receptors. A FS for the installation has evaluated the effectiveness of remedial actions in mitigating risk based on the proposed reuses of the installation.
- ▶ The U.S. Army has and will continue to solicit input from the community on proposed reuse scenarios and reuse plan implementation through communication with the Cameron Station Task Force and participation in the Restoration Advisory Board (RAB) process (see Section 3.5).
- ▶ The presence of residual contamination at Cameron Station after closure will be considered in the development of real estate transfer documentation. The U.S. Army anticipates that remediation of contaminated groundwater at Cameron Station will continue beyond the specified date of September 30, 1995 to close the installation. The U.S. Army will not sell land until remediation is complete, or will sell the land with a Statement of Condition, specifying that remediation activities are underway, the expected timeframe of completion, and limits on reuse of part of the land. Restrictions on development can not be specified at this time without a detailed reuse site plan. Easements will be established to insure U.S. Army and Regulator access for remedial action equipment operation and maintenance and long-term monitoring.

The Cameron Station strategy and schedule is designed not only to remediate sites in a manner consistent with reuse goals but also to streamline and expedite the necessary response actions associated with Reuse Parcels A, B, and C in order to facilitate the earliest possible disposal. Because of the need to delineate between areas suitable and unsuitable for transfer based on historical activities and restoration status, the BCT has developed an environmental-condition-of-property map and a suitable property for transfer map for Cameron Station (see text and figures in Chapter 3.4) using data from the Community Environmental Response Facilitation Act (CERFA) and RI/FS investigations of the installation. The environmental condition of property



map allows the visualization of potentially contaminated areas and areas of no suspected contamination, and the relationship of these areas to disposal and reuse parcels. The suitable property for transfer map further defines those properties which have had no hazardous substance releases or which have had releases that have been remediated or have a remedy in place and are therefore available for transfer under CERCLA. The BCT will continue to update and refine the environmental condition-of-property and property suitable for transfer maps for Cameron Station as data become available and as site restorations are completed.

## **2.3 Property Transfer Methods**

The various property transfer methods being utilized or considered in the disposal process at Cameron Station are described in this section. These transfer methods were identified based on U.S. Army BRAC disposal protocols established by P.L. 100-526 and the Federal Property and Administration Services Act. The status of the proposed transfer methods presented in the Cameron Station Reuse Plan are identified. Transfer methods which are not currently being considered but which could be used in future disposal planning actions at the installation have also been identified.

### ***2.3.1 Federal Transfer of Property***

Screening of Cameron Station for use by other federal agencies was completed on 10 September 1992. No other federal agency expressed an interest in the property. The property is thus surplus to the federal government.

Cameron Station completed McKinney Act Screening on 22 August 1994. Homeless providers received awards for two facilities, Buildings 9 and 20.

### ***2.3.2 No-Cost Public Benefit Conveyance***

State and local screening at Cameron Station was completed 22 September 1994. The Cameron Station Reuse Plan calls for the transfer of approximately 63 acres of Cameron Station (Reuse Parcels A and C) to the City of Alexandria for use as public open space and recreation. The City of Alexandria has filed an application with the Department of Interior to acquire this federal surplus land as outlined in the plan.

### ***2.3.3 Negotiated Sale***

There is no indication at this time that a negotiated sale would take place at Cameron Station.

### ***2.3.4 Competitive Public Sale***

The Task Force to Monitor the Closing of Cameron Station has proactively worked with the City of Alexandria to rezone the parcels at Cameron Station in accordance with the City Coordinated Development District Zoning Ordinance. The U.S. Army is in the process of preparing the invitation bid for the development of Reuse Parcel B. The development contract is slated to be awarded in the spring of 1995.



### ***2.3.5 Widening of Public Highways [Easements]***

There is no indication at this time that any property at Cameron Station will be transferred for the widening of public highways.

### ***2.3.6 Donated Property***

There is no indication at this time that any property at Cameron Station will be donated.

### ***2.3.7 Interim Leases***

There is no indication at this time that there will be any interim leases at Cameron Station. Interim leases that may occur at the installation in the future will be identified in Table 2-2.

**TABLE 2-2. EXISTING LEGAL AGREEMENTS/INTERIM LEASES**

<b>Title Interim Lease/Legal Agreement</b>	<b>Building No./Areas</b>	<b>Date of Agreement</b>	<b>Reuse Parcel</b>
	<b>There are currently no legal agreements or interim leases associated with Cameron Station. Future changes will be reflected here.</b>		

# CHAPTER 3

## ► INSTALLATION-WIDE ENVIRONMENTAL PROGRAM STATUS ◄

This section provides a summary of the current status of environmental restoration projects and ongoing compliance activities at Cameron Station. It also summarizes the status of the cultural and natural resources program, community involvement to date, and describes the environmental condition and suitability for transfer of the installation property.

### 3.1 Environmental Program Status

The Post Commander is responsible for establishing and maintaining all environmental programs, compliance matters, and remediation efforts at Cameron Station. These programs are executed by the Environmental Division of the DPW at the FMMC. Two principal U.S. Army components assist the installation's effort. The USAEC conducted BRAC site investigation activities at the installation. The USACE, Baltimore District provides support in areas including RD, RA, compliance programs, and natural and cultural resource management. Cameron Station is not a NPL site. The lead regulatory oversight agency for the installation is the VDEQ.

Environmental restoration programs at Cameron Station are currently conducted under the BRAC IRP program in compliance with applicable Department of the Army (DA), DoD, state and federal statutes and regulations, particularly CERCLA. Environmental compliance programs at Cameron Station are conducted in compliance with applicable DA and DoD regulations, state and federal regulatory programs including those administered under the Clean Air Act (CAA), Clean Water Act (CWA), Safe Drinking Water Act (SDWA), RCRA, Toxic Substances Control Act (TSCA), and SARA.

An environmental restoration program has been in place at Cameron Station for approximately six years. A summary of some of the major milestones in the IRP and compliance programs at the installation is provided below.

- Enhanced Preliminary Assessment (ENPA) and CERFA investigations have been completed. Sixteen areas requiring environmental evaluation (AREEs) were identified.
- An RI/FS has been completed. Twelve OUs were defined.
- A DD for the installation was prepared in November 1993. Four OUs were identified as no further remedial action planned (NFRAP). The DD is undergoing an amendment process to recommend NFRAP for OU 3, a former landfill. Five OUs are currently undergoing remedial action. Five of the OUs are expected to be remediated by Cameron Station's closure date of September 1995. Groundwater remediation at the installation is expected to continue past closure.



- ▶ UST, PCB transformer, and asbestos removal and encapsulation have been completed as compliance early actions.

Table 3-1 lists the 12 OUs which have been identified at Cameron Station and the associated AREEs which were identified during the ENPA and CERFA site investigations. The identity, distribution, and status of each of the AREEs and OUs are described in more detail in the following sections.

### *3.1.1 Restoration Sites*

The BRAC IRP at Cameron Station was initiated in May 1989 with the ENPA. The ENPA, completed in October 1989, identified a number of areas that needed further investigation. These areas were expanded in number and further defined as AREEs in the CERFA report completed in April 1994. A total of 16 AREEs have been identified as follows:

- ▶ **PCB Transformer Service, Storage, and Spill Areas.** This AREE consists of known and suspected PCB spill areas and past and present pole, platform or pad-mounted transformer locations at Cameron Station. Investigation of these PCB areas resulted in the identification of another potential source of contamination, a road de-icing salt pile located south of Building 30. The salt pile did not result in contamination and is now kept covered to prevent any leaching.
- ▶ **Cameron Lake and Burn Pits.** Portions of what is now Cameron Lake and one area adjacent to the landfill loading dock were formerly used to dispose of certain wastes by burning. These practices are believed to have lasted until the mid-1950s.
- ▶ **Dredge Spoil Disposal Areas.** Cameron Lake, which receives the majority of the storm runoff from the facility, was reportedly dredged in the mid- and late 1950s, and again around 1980. Spoils from the dredging operations were placed in the area north of the lake, between the parking lot and eastern facility boundary.
- ▶ **Landfill.** An inactive landfill is located in the southeastern corner of the installation between Backlick Run, Cameron Run and the railroad tracks. The landfill was reportedly used for solid waste disposal. Residual debris from burn pits, dredged lake and stream sediments, and road construction material are reported to make up the bulk of the filled material. This disposal reportedly was practiced from 1955 to 1967.
- ▶ **Pesticide Use and Storage Areas.** This AREE includes those areas of the installation identified as potentially contaminated with pesticides (including herbicides). These areas include past and present pesticide storage and handling

**TABLE 3-1. PRELIMINARY LOCATION SUMMARY**

AREE Number*	AREE Description	Environmental Investigation Report Results/Findings				Final Determination
		CERFA	RI	FS	Findings	
OU 1	PCB transformer service, storage and spill areas	×	×	×	Limited PCB contamination in one area. All PCB transformers removed from post.	Contaminated soil will be excavated and disposed of at a RCRA Landfill.
OU 2	Cameron Lake, burn pits	×	×		Remediation of soils or groundwater not warranted.	No further action planned.
OU 2	Dredge spoil disposal areas	×	×		Remediation of soils or groundwater not warranted.	No further action planned. Dredge spoil disposal areas now included in OU 2.
OU 3	Landfill and material storage area	×	×	×	No widespread contamination of subsurface soils or groundwater.	Landfill will be monitored as specified on pending DD amendment.
OU 4	Pesticide use and storage areas	×	×	×	Localized contamination in two areas, one includes septic tank.	Septic tank and surrounding soil will be excavated and properly disposed.
OU 5	Sanitary and storm sewer systems	×	×	×	Sludge tanks and grease traps associated with sewer system cleaned out. Significant TCE contamination in groundwater.	A pump treat system will be installed for groundwater remediation. Periodic clean-out of sludge tanks and grease traps will continue.
OU 6	Acid pits	×	×	×	Localized soil contamination around both pits.	Soils will be excavated and disposed of at a RCRA landfill.
OU 7	Asbestos and lead-based paint	×	×	×	Immediate action required for asbestos abatement in two buildings. Lead-based paint believed to be in older buildings.	Asbestos abatement completed in fall 1994. Lead-based paint no longer considered to be part of OU 7.
OU 8	PX Service Station	×	×	×	Significant soil and groundwater contamination from leaking USTs. Service Station no longer in operation. Large area of free product discovered. Early actions: leaking USTs removed; pilot soil vapor extraction system installed; and petroleum product recovery wells installed. Thermal desorption for soil remediation complete.	Remediation expected to continue past closure; vapor extraction, and groundwater treatment is planned as the final remedial stage. Building 2 UST now included in OU 8.



**TABLE 3-1. PRELIMINARY LOCATION SUMMARY**

**Continued**

AREE Number*	AREE Description	Environmental Investigation Report Results/Findings				Final Determination
		CERFA	RI	FS	Findings	
OU 8	Building 2 USTs	x	x	x	Hole was discovered in tank. Tank was removed. Localized groundwater contamination.	Air stripping will be used for groundwater remediation. In-situ bioremediation will be used for soil remediation.
OU 9	Road oiling and fly ash disposal areas		x		No significant contamination. Remediation not warranted.	No further action planned.
OU 10	Surface water areas		x		No significant contamination. Remediation not warranted.	No further action planned.
OU 11	Pigeon roosting in Building 21		x		No significant contamination. Existing wastes removed. Remediation not warranted.	No further action planned.
OU 12	Other USTs	x	x	x	Integrity tests indicated all tanks were tight.	All tanks will be removed in compliance with VDEQ regulatory requirement for closure.
OU 12	Motor Pool USTs	x	x	x	Integrity tests indicated all three tanks were tight.	Motor pool USTs included in OU 12. All tanks will be removed in compliance with VDEQ regulatory requirement for closure.
OU 5	Benzene Contamination	x	x	x	Significant benzene/1,2-DCA groundwater contamination. Plume originating off-site.	Remediation of plume not U.S. Army's responsibility. VDEQ is currently requiring offsite sources to monitor.

\*Note: OU numbers were designated during the RI. AREEs listed in the CERFA report were not identified with numbers.

facilities, as well as areas such as fence lines that have received routine application of these chemicals.

- ▶ **Sanitary and Storm Sewer Systems.** This AREE consists of the sanitary and storm sewer systems at Cameron Station. Much of the liquid chemical wastes generated at Cameron Station, including photographic solutions, solvents and other wastes from print shops, were disposed of via discharge to the sanitary sewer system.
- ▶ **Acid Pits.** Two acid pits were investigated during the RI and were identified as an AREE in the CERFA report. The two pits are located near the northwest corner of Building 9 and at the north end of Building 23. Reportedly, these pits were used for acidic waste disposal associated with automotive maintenance activities at the motor pool and PX Service Station. They consist of three-foot diameter concrete casings placed into the ground to a shallow depth and backfilled with gravel.
- ▶ **Asbestos and Lead-Based Paint.** A comprehensive asbestos survey was completed in order to identify friable and non-friable asbestos-containing material (ACM); provide options for abatement of asbestos; provide cost estimates for both abatement and operations and maintenance costs; and identify asbestos requiring immediate action in Cameron Station's 24 buildings. Lead-based paint was assumed to be present in all buildings constructed prior to 1978.
- ▶ **PX Service Station Underground Storage Tanks.** USTs present at the PX Service Station were identified as an AREE due to the potential for spills and leaks. Integrity tests performed on these USTs during the RI indicated the tanks were not tight and subsurface investigations found releases of petroleum products and groundwater contamination at this location.
- ▶ **Building 2 - Underground Storage Tanks.** USTs present at Building 2 were identified as an AREE due to the potential for spills and leaks. Integrity tests performed on these USTs during the RI also indicated tanks at Building 2 were not tight. Subsurface investigations found releases of petroleum products and groundwater contamination at this location.
- ▶ **Road Oiling and Fly Ash Disposal Areas.** Review of the site history revealed that waste oils had been applied to unpaved roads near Building 9 for dust suppression prior to 1970. This area possibly had been used also for disposal of fly ash from the boiler house (Building 21).
- ▶ **Surface Water Areas.** These surface waters include Backlick Run, Holmes Run, and Cameron Run. Storm water runoff from the site enters Backlick Run either directly by drainage systems and overland flow, or indirectly through Cameron Lake.



- ▶ **Pigeon Roosting in Building 21.** Pigeons had roosted in the upper areas of the Building 21 and droppings had accumulated several inches thick. The presence of the droppings presented a concern for possible fungus infection of facility workers or future exposed populations.
- ▶ **Motor Pool USTs.** Three USTs containing gasoline and diesel fuel were identified an AREE. The tanks underwent integrity tests during the RI and were found to be tight.
- ▶ **Other Underground Storage Tanks.** This AREE consisted of all USTs with the exception of those at the PX Service Station, Building 2, and the motorpool. Both operating USTs and USTs that were known to have been abandoned were included.
- ▶ **Benzene Contamination.** This AREE consists of groundwater contamination containing benzene and 1,2-dichloroethane (1,2-DCA). Current data indicate that the source of contamination is off-site.

The restoration effort at Cameron Station began in the fall of 1989 with the commencement of an RI. The RI investigated the various sites identified in the ENPA. The RI program at Cameron Station evaluated the potential for contamination from each type of contaminant source and was performed in three phases:

- ▶ Phase I (August 23, 1990 through March 20, 1991) included geophysical surveys; soil gas surveys; installation, development and sampling of 11 monitoring wells; underground tank integrity tests; surface water and sediment sampling; soil sampling; pigeon roosting survey; sanitary and storm sewer inspection; PCB spill and storage area sampling; and chemical analysis of the collected samples. A comprehensive base-wide survey for the presence of ACM was also performed.
- ▶ Phase II (August 14, 1991 to October 18, 1991) included installation, development, and sampling of fifteen monitoring wells; soil sampling; sediment sampling; PCB transformer area sampling; and chemical analysis of collected samples.
- ▶ Phase III (March 9, 1992 to June 30, 1992) included additional soil sampling for pesticide contamination near Building 30; rapidly delineating groundwater conditions with Hydropunch sampling; verification of conditions of installation, development, and sampling of six monitor wells; and chemical analysis of collected samples.
- ▶ Phase IV (1992 to October 1993) investigated the benzene and 1,2-DCA groundwater contamination plume identified at the installation. An audit was performed during this investigation to determine the source of trichloroethylene (TCE) contamination on Cameron Station.

The RI identified 12 OUs. These OUs are:

- ▶ OU 1 - PCB transformer service, storage, and spill areas
- ▶ OU 2 - Cameron Lake, burn pits, and dredge disposal areas
- ▶ OU 3 - Former landfill
- ▶ OU 4 - Pesticide use and storage areas
- ▶ OU 5 - Sanitary and storm sewer systems
- ▶ OU 6 - Acid pits
- ▶ OU 7 - Asbestos in buildings
- ▶ OU 8 - PX service station and Building 2 USTs
- ▶ OU 9 - Road oiling and fly ash disposal areas
- ▶ OU 10 - Surface water areas
- ▶ OU 11 - Pigeon roosting in Building 21
- ▶ OU 12 - Other USTs.

The strategy for the designation of these OUs is described in Section 4.1.2.

A major element in the RI was the baseline risk assessment of human health. The risk assessment evaluated the potential for adverse effects to future populations at and adjacent to Cameron Station as a result of exposure to hazardous substances present at the installation.

An exposure pathway analysis was completed to determine current and future potential risk receptors. Current receptor populations identified in the risk assessment consist of adult and child recreational visitors, adult exerciser/joggers, gas station workers and 9-16 year old waders. Future populations which could be receptors consist of child and on-site residents and on-site construction workers. There were no current or future off-site receptors identified in the risk assessment. Results of the risk assessment indicated that noncancer health effects are not expected from exposure to potential site-related chemicals. However, the risk assessment identified a number of cancer risks from exposure to site-related chemicals if no remedial actions were taken at Cameron Station.

A conceptual site model for Cameron Station consisting of Exposure Scenario Tables and diagrams which identify potential contaminant sources, pathways and receptors evaluated in the RI baseline risk assessment is included in Appendix E.

An FS for Cameron Station was completed in conjunction with the RI in February 1994. The FS was based on information provided in the RI report and evaluated a variety of remedial alternatives for OU 1, OU 3, OU 4, OU 5, OU 6, and OU 8 using seven of nine CERCLA criteria:

- ▶ Overall protection of human health and the environment
- ▶ Compliance with applicable or relevant and appropriate requirements
- ▶ Short-term effectiveness
- ▶ Long-term effectiveness and permanence
- ▶ Reduction of toxicity, mobility, or volume through treatment
- ▶ Implementability
- ▶ Cost.



The remaining two CERCLA evaluation criteria, state and community acceptance, were addressed in the installation DD. OUs 2, 9, and 10 were determined to require no remedial action and were not included in the FS. OU 11 required no remedial action other than the removal of bird waste from the building and was also not included in the FS. These no further action decisions are summarized in Appendix D. OU 12, other installation USTs, and OU 7, asbestos, required actions under non-CERCLA regulatory compliance programs and were therefore not included in the FS.

An installation-wide proposed plan was completed in June 1993. The plan identified the preferred remedial alternative for each of the six OUs addressed in the FS. Public comments were received on the plan and an installation-wide DD for Cameron Station was signed in June 1994. The DD summarized the findings of the RI/FS and formalized the selection of the remedial alternatives for each of the FS OUs. The DD is summarized in Appendix C.

The remedial action for the former landfill, OU 3, as stated in the DD consists of capping the landfill. Based on a review of regulatory requirements and RI data, the U.S. Army has determined that this remedial alternative is not necessary. The DD is currently undergoing an amendment process to recommend NFA for this OU.

Remedial designs have been completed for all seven of the OUs at Cameron Station which were determined to require remedial action. Remedial actions have been initiated for 4 of these OUs (OUs 1, 4, 6, 8) and remedial action has been completed for one of these OUs (OU 7). Table 3-2 identifies each of the OUs that have been investigated as part of the environmental restoration program at Cameron Station. The DoD Restoration Management Information System (RMIS) site numbers are provided in Table 3-2 for sites where the data are available. The RMIS database tracks the status of IRP activities funded under the Defense Environmental Restoration Account (DERA) and BRAC account from the identification stage to completion of remedial actions and development of NFRAP documentation. Table 3-2 also lists the study area (consisting of zone/parcel location designation for each site) and may be cross-referenced to the reuse map presented in Figure 2-1. The restoration sites, or OUs, located on Cameron Station are shown in Figure 3-1. Individual maps of each OU showing OU location, size, and RI sampling points are provided as Figures F-1 through F-12 in Appendix F.

A major element in the Cameron Station environmental restoration process is the execution of early actions. These early actions provide the means of removing contamination sources and reducing risks posed by releases while at the same time providing critical data for the development of effective long term remedial actions. Early actions can also accelerate the availability of property for economic development. Ongoing restoration early actions include operation of a pilot soil vapor extraction system, soil remediation, and petroleum product recovery wells for OU 8. These early actions are identified in Table 3-3. A number of other early actions have been completed at Cameron Station under regulatory compliance programs. These include UST, PCB transformer, and asbestos remedial actions. These early action projects are summarized in Table 3-6 and are described in detail in Section 3.2. The BCT will continue to evaluate opportunities to complete additional early actions at the installation as the restoration process continues to accelerate remediation and reuse.



**TABLE 3-2. ENVIRONMENTAL RESTORATION SITE/STUDY AREA SUMMARY**

Reuse Parcel(s)	OU	RMIS Site No.	Site Class	Description	Material Disposed Of	Date of Operation	Status	Risk to Human Health and the Environment	Federal Regulatory Mechanism	NFA	CERFA Environmental Category*	DoD Environmental Category**
A, B, C	1	CAST-01	Operable Unit	PCB transformer service, storage and spill areas	PCB oil spills	Unknown-1980	RD	$<1 \times 10^{-4(4)}$	CERCLA, TSCA		D	5
A	2	--	Operable Unit	Cameron Lake, burn pits, dredge spoil disposal areas	Dredge spoils	Burn pits: Unknown-mid-1950s Disposal areas: 1950s-1980	NFA	$<1 \times 10^{-4(3)}$	CERCLA, RCRA, CWA	✓ <sup>(1)</sup>	D	3
A	3	CAST-03	Operable Unit	Landfill	Dredged sediments, road construction material	1955-1967	TBD <sup>(5)</sup>	$<1 \times 10^{-4(3)}$	CERCLA, RCRA, CWA	TBD <sup>(5)</sup>	D	3
A, B, C	4	CAST-04	Operable Unit	Pesticide use and storage areas	Pesticides	Unknown-present	RD	$<1 \times 10^{-4(4)}$	CERCLA, TSCA, CWA		D	5 <sup>(7)</sup>
A, B, C	5	CAST-05	Operable Unit	Sanitary and storm sewer systems	Photographic solutions, solvents	No longer used for disposal	RD	$<1 \times 10^{-4(4)}$	CERCLA, CWA		D	7 <sup>(8)</sup>
A, C	6	CAST-06	Operable Unit	Acid pits	Battery acid, waste petroleum	No longer in operation	RD	$<1 \times 10^{-4(4)}$	CERCLA, RCRA, CWA		D	5
A, B, C	7	CAST-07	Operable Unit	Asbestos in buildings	Friable asbestos <sup>(6)</sup>	Unknown-1994 <sup>(6)</sup>	NFA <sup>(6)</sup>	$<1 \times 10^{-4(4)}$	TSCA, CAA	✓ <sup>(6)</sup>	Q	NA
A, B	8	CAST-02	Operable Unit	PX Service Station, Building 2 USTs	Motor fuel, diesel oil	PX USTs: Unknown-1993; Bldg. 2 UST: Unknown-1991	RD/RA	$<1 \times 10^{-4(4)}$	RCRA		D	6 <sup>(9)</sup>
B, C	9	--	Operable Unit	Road oiling and fly ash disposal areas	Waste oil and fly ash	Unknown-1970	NFA	$<1 \times 10^{-4(3)}$	CERCLA, RCRA	✓	D	3
A, B, C	10	--	Operable Unit	Surface water areas	NA	NA	NFA <sup>(1)</sup>	$<1 \times 10^{-4(3)}$	CWA	✓	C	3
B	11	--	Operable Unit	Pigeon roosting in Building 21	Pigeon Waste	Unknown-1993	NFA <sup>(2)</sup>	$<1 \times 10^{-4(3)}$	NA	✓	C	NA
A, B, C	12	CAST-08	Operable Unit	Other USTs	NA	Unknown-present	RD	$<1 \times 10^{-4(4)}$	RCRA		D	4 <sup>(10)</sup>

**Key:** CERCLA = Comprehensive Environmental Response Compensation and Liability Act  
 CERFA = Community Environmental Response Facilitation Act  
 CAA = Clean Air Act  
 CWA = Clean Water Act  
 NA = Not Applicable  
 RCRA = Resource Conservation and Recovery Act  
 TSCA = Toxic Substances Control Act

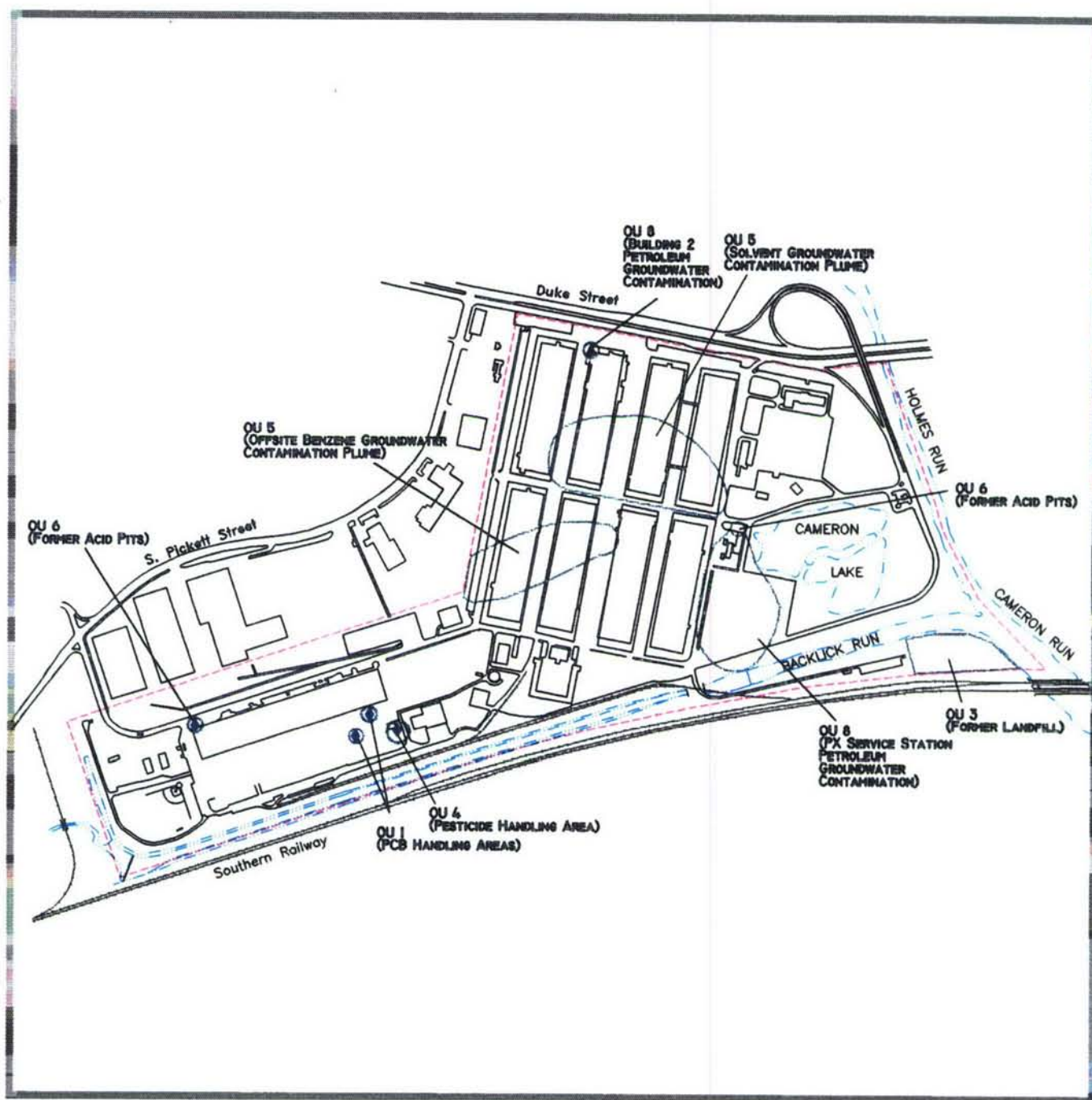
\*CERFA Environmental Categories:  
 C = CERFA Clean  
 E = CERFA Excluded  
 Q = CERFA Qualified  
 D = CERFA Disqualified

See Section 3.4.4 for Definitions  
 \*\*See Section 3.4.5 for Definitions

<sup>(1)</sup>No fishing ban imposed to eliminate potential exposure risks from OU.  
<sup>(2)</sup>NFA following removal of pigeon waste.  
<sup>(3)</sup>Cancer risk estimation with no remedial action.  
<sup>(4)</sup>Cancer risk estimation following remedial action.  
<sup>(5)</sup>The DD is undergoing an amendment process to recommend. No further action for OU.  
<sup>(6)</sup>Remedial action required for Building 30 septic system.  
<sup>(7)</sup>Sanitary and storm sewers are Category 5; solvent groundwater contamination plume is Category 6; off-site groundwater contamination plume is Category 7.  
<sup>(8)</sup>PX Service Station is Category 5; Building 2 UST site is Category 6.  
<sup>(9)</sup>Building 17 UST site is Category 4; all other UST sites are Category 2.



**This page intentionally left blank.**



## EXPLANATION

- ◆ Environmental Restoration Site
- OU
- Installation Boundary
- ▲ UST Environmental Restoration Site

Notes: OU 7 (Asbestos) and OU12 (other Installation USTs) are Installation-wide and are not depicted. OU boundaries shown are for general presentation purposes only and do not depict exact OU or contamination extent. Detailed figures showing each OU and associated RI sampling points are provided in Appendix F.



0 425 850  
FEET

Environmental  
Restoration Sites,  
and OUs Currently  
Under Investigation

Figure 3-1



**TABLE 3-3. ENVIRONMENTAL RESTORATION EARLY ACTION STATUS**

Site	Action	Purpose	Status
PX Service Station and Building 2 USTs	UST removals; soil vapor extraction system operation; petroleum product recovery well installation and operation; soil excavation and thermal desorption	To remove petroleum contamination from soil and groundwater	Ongoing

### ***3.1.2 Installation-Wide Source Discovery and Assessment Status***

A number of installation-wide assessments have been conducted to identify the presence of contamination sources at Cameron Station. These include the ENPA completed in October 1989, the Preliminary Assessment Addendum completed in March 1992, and a comprehensive RI/FS completed in February 1993. The most recent installation-wide investigation conducted at Cameron Station was a CERFA investigation which was completed in April 1994. Several other installation-wide surveys which are related to environmental compliance programs have also been conducted at Cameron Station. These included an asbestos survey completed in February 1994 as part of the RI investigation and a radon survey completed in 1989. A total of 16 AREEs have been identified through these installation-wide investigations.

Bottom-up Reviews conducted by the BCT as part of the BCP preparation process have not revealed any additional AREEs. Should any new AREEs be identified prior to the transfer of the property in 1995, they will be addressed according to the strategy described in Chapter 4.

### **3.2 Compliance Program Status**

Compliance activities at Cameron Station are being conducted in coordination with environmental restoration activities being completed under the BRAC IRP. General compliance activities address the management of USTs, hazardous materials, asbestos, radon, polychlorinated biphenyls (PCBs), and water discharges. Compliance-related remedial actions at Cameron Station include removal of USTs, removal of PCB transformers and remediation of friable asbestos.

The statutory basis for IRP activities at Cameron Station is CERCLA. Compliance-related management and restoration activities are differentiated from CERCLA actions because they are regulated primarily under other statutes. These statutes include RCRA Subtitles C, D, and I, the CWA, CAA, TSCA, and NEPA.

Compliance actions at the installation can be divided into two separate categories, current mission- and operational-related compliance projects and closure-related compliance projects. Mission- and operational-related projects are those which have been or would be conducted for the normal operation of the installation and are unrelated to activities necessitated by installation closure under BRAC. Conversely, closure-related compliance projects are those conducted specifically as a result of environmental compliance and restoration activities related to BRAC closure and property disposal. The various environmental compliance projects at Cameron Station are identified by mission-related and closure category in Tables 3-4 and 3-5, respectively.

A number of compliance-related activities at Cameron Station have been completed as early actions in order to reduce or eliminate potential contamination at the installation. These actions are related to UST management and are identified in Table 3-6. A more detailed description of the various environmental compliance programs at Cameron Station is provided in the subsections below.



**TABLE 3-4. MISSION/OPERATIONAL-RELATED COMPLIANCE PROJECTS**

Project	Status	Regulatory Program
Aboveground Storage Tank Management	Two aboveground storage tanks are operated and maintained.	Virginia Aboveground Storage Tank regulations.
Hazardous Materials Management	Hazardous materials inventories maintained. Notification and coordination with City of Alexandria Fire Department.	SARA, Title III, U.S. Coast Guard and Oil Storage Facilities Management Regulations.
Hazardous Waste Management	One hazardous waste collection station maintained at Building 9, Door 34 (90 days maximum). Hazardous wastes ultimately disposed of at off-site disposal facility.	RCRA Subtitle C, Virginia Hazardous Management Regulations, and U.S. Army Regulations.
Solid Waste Management	Solid waste disposed of at off-site landfill.	RCRA Subtitle D.
Pollution Prevention Programs	Photographic wastes are recycled.	AR 200-1, SARA Title III
Air Quality Management	Initial USAEC survey completed; Air Quality Permit application due April 1994. However, Cameron Station is expected to be exempt. Application requirements currently under review.	Clean Air Act.
Oil/Water Separator Management	Must comply with wastewater regulations. Discharge sampling conducted to ensure compliance.	CWA City of Alexandria Pretreatment Code 5-6-80.
NEPA Compliance	Significant construction/demolition and other actions are reviewed and proper NEPA documentation is completed.	NEPA.
Worker Training Various Compliance Programs	Training ongoing or scheduled	Multiple.
Lab Analysis Various Compliance Programs	Ongoing as required.	Multiple.

Key: AR = Army Regulation  
CWA = Clean Water Act  
NEPA = National Environmental Policy Act  
NPDES = National Pollutant Discharge Elimination System  
RCRA = Resource Conservation and Recovery Act  
SARA = Superfund Amendments and Reauthorization Act  
USAEC = U.S. Army Environmental Center

**TABLE 3-5. CLOSURE-RELATED COMPLIANCE PROJECTS**

Project	Status	Regulatory Program
Underground Storage Tank Management	At Post Exchange Service Station, Building 23: 7 USTs removed in October 1993, soil removal complete, free product removal in progress; Building 2: 2 USTs removed in November 1992, remedial design for soil remediation complete, RA to begin in spring 1995; 14 other USTs scheduled for removal in spring 1995; RD completed for removals.	VR 680-13, RCRA Subtitle I, Clean Water Act.
Hazardous waste management	As part of closure activities, all hazardous wastes will be disposed of via DRMO. Funding allocated for close out surveys of tenant buildings upon vacancy.	RCRA.
PCB Management	PCB transformers removed in 1991. PCB spill sites remediation being handled under BRAC IRP.	TSCA, USEPA policy.
Asbestos Management	Comprehensive asbestos survey completed as part of RI. Friable asbestos remediation throughout installation completed.	AR 200-1 and U.S. Army Policy Memorandum "Lead-based Paint and Asbestos in U.S. Properties affected by Base Closure and Realignment" 15 November 1993.
Lead-Based Paint Management	Lead-based paint survey of Building 20, completed because building may house children if used by provider for the homeless after installation closure.	AR 200-1 and U.S. Army Policy Memorandum "Lead-based Paint and Asbestos in U.S. Properties affected by Base Closure and Realignment" 15 November 1993.
NEPA Compliance	Closure EIS and Disposal and Reuse EA completed by USACE.	NEPA.

Key:

AR	=	Army Regulation
BRAC	=	Base Realignment and Closure
EA	=	Environmental Assessment
IRP	=	Installation Restoration Program
PCB	=	Polychlorinated Biphenyl
RA	=	Remedial Action
RCRA	=	Resource Conservation and Recovery Act
RD	=	Remedial Design
VR	=	Virginia Regulation
USACE	=	U.S. Army Corps of Engineers
UST	=	Underground Storage Tank
DRMO	=	Defense Reutilization and Marketing Office
TSCA	=	Toxic Substances Control Act
USEPA	=	U.S. Environmental Protection Agency
RI	=	Remedial Investigation
NEPA	=	National Environmental Policy Act
EIS	=	Environmental Impact Statement



**TABLE 3-6. COMPLIANCE EARLY ACTION STATUS**

Site	UST No.	Action	Purpose	Status
Building 2	U2-1 U2-2	Removed two USTs in November 1992	To remediate the site due to system failure	USTs removed
Building 9	U9-1 U9-2	Abandoned 2 USTs, filled with concrete	To remove from service	Abandoned
	U9-3	Removed one UST	To remove from service	Removed
Building 17	U17-1 U17-2	Removed two 12,000 gallon USTs in fall 1989	To upgrade parking lot/remove possible petroleum release source	Removed
Building 20	U20-1 U20-2 U20-3	Removed USTs within Building 20 footprint	To remove possible petroleum source release	Removed
Post-wide PCB removal (Part of OU 1)	--	All PCB-regulated transformers removed and destroyed in accordance with TSCA	To comply with the PCB mitigation laws/remove possible PCB release sources	Removed October 1991; destroyed in accordance with 40 CFR 761
Post-wide storm sewer traps (OU 5)	--	Post-wide storm sewer clean-out completed	To facilitate storm water runoff	Ongoing as required
Building 2 USTs (OU 8)	--	Two USTs removed in November 1992	To remove failed UST system	Soil remediation planned
UST north of Building 2	--	One UST for fuel and one sewage tank removed	To investigate the site under BRAC	Both removed
Post-wide asbestos removal (OU 7)	--	Project is ongoing; to be completed by fall 1994	To remove friable or damaged asbestos/ prevent hazardous exposure	See Appendix F for complete status on removal projects
Building 23	U23-1 U23-2 U23-3 U23-4 U23-5 U23-6 U23-7	Removed 7 USTs in October 1993 as an Interim Action	To remove source of soil/groundwater contamination associated with OU 8 (PX Service Station)	Removed. Corrective Action Plan has been approved by VDEQ and began December 1994

**Key:**    UST     =    Underground Storage Tank  
           PCB     =    Polychlorinated Biphenyl  
           TSCA   =    Toxic Substances Control Act  
           CFR     =    Code of Federal Regulations  
           BRAC   =    Base Realignment and Closure  
           VDEQ   =    Virginia Department of Environmental Quality

Cameron Station maintains several notifications with federal, state, and local agencies under various installation environmental compliance programs. These include notifications for UST and hazardous waste generator activities. The need for an air emissions source permit for the installation is being evaluated. Cameron Station is gathering data and preparing an application for submission to VDEQ in order for them to make a determination. Cameron Station is anticipating that it will be exempt from permitting requirements due to the limited number and size/output of the emission sources. A wastewater discharge permit application for the discharge of treated groundwater from a system to be installed for OU 5 is also being prepared by the FMMC DPW. The various notifications and permit applications in progress for Cameron Station are summarized by environmental compliance program in Table 3-7.

### **3.2.1 Storage Tanks**

USTs and aboveground storage tanks (ASTs) have historically been utilized for the storage of petroleum products at Cameron Station for heating purposes, motorpool operation and vehicle fueling. Compliance and environmental restoration activities related to these storage tanks are described in this section.

**3.2.1.1 USTs.** The USEPA has delegated the management of the RCRA UST program to the Commonwealth of Virginia. The Water Division of VDEQ has primary enforcement responsibility for the state program.

Thirty USTs have been identified at Cameron Station. Seventeen of the tanks have been removed. Thirteen tanks are scheduled for removal beginning in April 1995. Table 3-8 provides a complete inventory of the USTs at Cameron Station. A more complete description of activities related to USTs at the installation is provided below.

**PX Service Station.** Seven 10,000-gallon USTs were located on the south side of the PX Service Station (Building 23). Four of the tanks contained gasoline, one contained diesel fuel, one contained waste oil and one contained fuel oil. These tanks were identified as part of OU 8 during the RI. Tank integrity tests performed during the RI indicated that the tanks systems were leaking. Subsequent RI investigations found releases of petroleum products at these locations.

Additional investigations were conducted at the PX Service Station in order to prepare a Site Characterization Report (SCR). These investigations identified widespread soil and groundwater contamination. The SCR and a Corrective Action Plan (CAP) were completed and submitted to the state in October 1991. The SCR was revised in June 1993 to reflect state comments and was approved by the state in October 1993. A revised CAP was requested by the state at that time. The revised CAP was submitted to the state in November 1993. State concerns were addressed in a meeting with the state in February 1994. A revised CAP was submitted in February 1994 and an approved CAP General Permit for the site was granted in April 1994.



**TABLE 3-7. ENVIRONMENTAL COMPLIANCE PERMITS,  
LICENSES, NOTIFICATIONS AND REGISTRATIONS**

Compliance Program	Permit/License/Notification/ Registration No.	Description	Issuing Agency	Issue Date	Expiration Date	Comments
Storage Tanks	--	Underground Storage Facility Notification Form for USTs	VDEQ	--	NA	Notification requires update after change in any UST status.
Hazardous Materials/Waste Management	VA4210220139	Notification of Hazardous Waste Activity	USEPA	--	NA	Subsequent notification required by new owner using existing site-specific USEPA ID No.
Air Emissions	--	Air Emissions Source Permit	VDEQ	--	--	Permit application and supporting documentation submitted to VDEQ for permit requirement determination. Permit requirement is not anticipated.
Wastewater Discharges		VPDES Groundwater Treatment System Discharge Permit	VDEQ			Permit application being prepared by FMMC DPW.

**Key:** DPW = Directorate of Public Works  
NA = Not Applicable  
VPDES = Virginia Pollutant Discharge Elimination System  
VDEQ = Virginia Department of Environmental Quality  
UST = Underground Storage Tank  
USEPA = U.S. Environmental Protection Agency  
FMMC = Fort Myer Military Community

**TABLE 3-8. UNDERGROUND STORAGE TANK INVENTORY**

Tank No.	OU	Reuse Parcel	Location	Quantity	Capacity (gallons)	Substance Stored	Status	Comments	Future Actions
U3-1	OU 12	B	Building 3	1 UST	550	Diesel Fuel	Active	None	To be removed
U6-1	OU 12	B	Building 6	1 UST	2,000	No. 2 Heating Oil	Active	None	To be removed
U15-1	OU 12	B	Building 15	1 UST	1,000	No. 2 Heating Oil	Active	None	To be removed
U16-1	OU 12	B	Building 16	1 UST	1,000	No. 2 Heating Oil	Active	None	To be removed
U21-1	OU 12	B	Building 21 Boiler Plant	5 USTs	25,000	No. 5 Heating Oil	Active	None	To be removed
U21-2	OU 12	B							
U21-3	OU 12	B							
U21-4	OU 12	B							
U21-5	OU 12	B							
U68-1	OU 12	A	Building 68 Motor Pool	1 UST	12,000	Diesel Fuel	Active	None	To be removed
U68-2	OU 12	A	Building 68 Motor Pool	2 USTs	12,000	MOGAS	Active	None	To be removed
U68-3	OU 8	B	Building 2	1 UST	2,000	No. 2 Heating Oil	Removed	Groundwater contamination at site being handled under BRAC IRP	None
U2-2	OU 12	B	Former PX Service Station, North of Building 2	1 UST	Unavailable	Gasoline	Removed	Removal not documented	None
U9-1	OU 12	A	Building 9	3 USTs	Unknown 2,000	Unknown	Abandoned/removed	None	None
U9-2	OU 12	A							
U9-3	OU 12	A							
U17-1	OU 12	C	Building 17	1 UST	12,000	MOGAS/Diesel	Removed	None	None
U17-2	OU 12	C	Building 17	1 UST	12,000	Gasoline/Waste Oil	Removed	UST removal and associated soil removal documented in USAEC report	None
U20-1	OU 12	C	Building 20	3 USTs	Unknown 1,000 6,000	Unknown Unknown Unknown	Removed Removed Removed	Removals not documented	None
U20-2	OU 12	C							
U20-3	OU 12	C							



**TABLE 3-8. UNDERGROUND STORAGE TANK INVENTORY**

Continued

Tank No.	OU	Reuse Parcel	Location	Quantity	Capacity (gallons)	Substance Stored	Status	Comments	Future Actions
U23-1	OU 8	B	Building 23, PX Service Station	7 USTs	10,000	MOGAS	Removed	Tanks associated with OU 8 contamination	None
U23-2	OU 8	B			10,000	MOGAS			
U23-3	OU 8	B			10,000	MOGAS			
U23-4	OU 8	B			10,000	MOGAS			
U23-5	OU 8	B			10,000	Diesel			
U23-6	OU 8	B			1,000	No. 2 Fuel Oil			
U23-7	OU 8	B			500	Waste Oil			
U25-1	OU 12	B	Building 25	1 UST	1,000	Heating Oil	Abandoned in place and filled with sand		To be removed

**Key:**

OU	=	Operable Unit
UST	=	Underground Storage Tank
MOGAS	=	Motor Gasoline
BRAC	=	Base Realignment and Closure
IRP	=	Installation Restoration Program
USAEC	=	United States Army Environmental Center
PX	=	Post Exchange

Various Interim Remedial Actions (IRAs) were initiated at the PX Service Station beginning in June 1991 prior to completion of the SCR and CAP in order to comply with Commonwealth of Virginia UST regulations and to ensure contamination did not extend off site. Several monitoring wells were converted into free product recovery wells using auto skimmers. A pilot soil vapor extraction system was installed and operated for about one year. An active pump and treat system was installed and operated as directed by the state to control the leading edge of the plume. The service station was closed in August 1993 when product releases from the distribution system lines could not be controlled. The USTs and associated lines were removed in September 1993. A soil thermal desorption unit operated for several months and treated approximately 2,300 tons of contaminated soil for reuse onsite. Free product skimming and vapor extraction has treated approximately 7,000 gallons of liquid since June 1991.

**Building 2.** A 2,000-gallon UST containing No. 2 fuel oil was located at the northwest corner of Building 2. The tank supplied fuel to a hot water heater for the Commissary butcher shop. The tank was taken out of service in 1991 when water was found inside the tank on two occasions, and partial excavation of the tank by Cameron Station personnel identified at least one hole in the tank sidewall. The tank was removed November 1992. Groundwater contamination is localized around the UST and the soil under and around Building 2 is contaminated. Along with the tanks at the PX Service Station, this tank was designated as part of OU 8 during the RI.

**Other USTs.** All UST sites at Cameron Station except those described above at the PX Service Station and Building 2 (OU 8) were designated OU 12 during the RI. These include 12 operating USTs: five 12,000-gallon No. 5 fuel oil tanks at Building 21 (Boiler Plant), three 12,000-gallon gasoline and diesel fuel tanks at Building 68 (Motor Pool), a 550-gallon diesel fuel tank at Building 3, a 2,000-gallon No. 2 fuel oil tank at Building 6 and 1,000-gallon No. 23 fuel oil tanks at Buildings 15 and 16. The tanks were integrity tested in 1993 during the RI investigation and again in 1994 and were found to be tight. Soil gas sampling at each UST site was also completed during the RI. The tanks are all scheduled for removal beginning in April 1995, after the heating season is over.

Eleven abandoned or removed USTs also have been identified at Cameron Station and were investigated during the RI as part of OU 12. Two 12,000-gallon USTs previously existed at Building 17 and served the roads-and-grounds department. One tank held diesel fuel; the other tank first held gasoline and then waste oil. These USTs were removed in 1990 by a USACE contractor. The abandonment included some soil removal and post-excavation soil sampling, which was documented in a closure report. Three groundwater monitoring wells were also installed; however, no report of the well installation nor results of analysis of groundwater samples were available.

A gasoline tank was reportedly present at a former PX Service Station, north of Building 2. The tank is believed to have been removed. The date of removal is unknown. On the north side of Building 9 near the northeast corner, a tank of unknown size (but probably 275-gallon according to site personnel) reportedly served a hot water tank in a restroom. The tank was also reportedly removed.



A 1,000-gallon UST is located near the southeast corner of Building 25. The UST reportedly contained No. 2 fuel oil and was filled with sand and abandoned in place in 1962. A 2,000-gallon tank that reportedly contained No. 2 fuel oil for a boiler was located on the east side of Building 9. The UST was reportedly been taken out of service some time in the 1980s and filled with concrete. Those tanks will be removed in the spring of 1995.

*ASTs.* AST compliance programs at Cameron Station are conducted under Army Regulation (AR) 200-1 and the federal and state requirements including 40 Code of Federal Regulations (CFR) Parts 110, 112, and 116 and Virginia Oil Pollution Prevention regulations.

There are currently three aboveground storage tanks located at Cameron Station. One tank is located at Building 2, and two tanks are located at Building 23. These tanks are identified in Table 3-9.

**TABLE 3-9. ABOVEGROUND STORAGE TANK INVENTORY**

Tank No.	Operable Unit	Reuse Parcel	Location	Quantity	Capacity (gallons)	Substance Stored	Status	Comments	Future Actions
A2-1	--	B	Building 2	1	550	No. 2 Fuel Oil	Active	--	--
A23-1 A23-2	--	B	Building 23	2	275	No. 2 Fuel Oil	Active	--	--

Cameron Station is not required to have a Spill Prevention Control and Countermeasures (SPCC) Plan. The individual and aggregate capacity of aboveground oil storage at the facility do not exceed the regulatory thresholds of 600 and 1,320 gallons respectively, and the aggregate underground oil storage capacity does not exceed the regulatory threshold of 42,000 gallons. However, Cameron Station does have an emergency and spill response program established through the Fort Myer DPW. The program includes coordinating emergency response with the City of Alexandria Fire Department and the utilization of appropriate management practices when handling oil products at the installation.

### **3.2.2 Hazardous Substances Management**

Historically, activities at Cameron Station have involved the management of a variety of hazardous materials. These materials include solvents and battery acid utilized at the motor pools and PX Service Station, pesticides stored and handled around Building 30, printing inks, solvents, and photographic development chemicals utilized at the installation print shops and photograph laboratories, and paints and solvents used in paint shops. Small amounts of other miscellaneous hazardous materials such as boiler treatment chemicals, groundskeeping, and janitorial supplies have also been utilized at the installation.

Hazardous materials present at Cameron Station are managed in compliance with federal requirements outlined in the Emergency Planning and Community Right-to-Know Act (EPCRA),



Executive Order 12385, the SPCC requirements in 40 CFR Parts 110 and 112, VDEQ regulations, AR 200-1 and other applicable federal, state, and local regulations.

Hazardous materials surveys of the installation were completed during ENPA and CERFA investigations. No extremely hazardous substance as specified in the SARA, Title II, Section 302 are believed to be present at the installation. Cameron Station does not maintain or utilize sufficient quantities of hazardous chemicals to require reporting under SARA Title III, Section 312 (Tier reporting), or SARA Title III, Section 313 (Toxic Chemical Release Form R reporting).

The installation maintains Material Safety Data Sheets (MSDSs) as required by OSHA for all hazardous chemicals on the installation. Spill response equipment is present at Cameron Station and at Fort Myer. The Fort Myer DPW coordinates hazardous materials training for applicable Cameron Station employees.

Pesticide storage and handling at Cameron Station is conducted in compliance with TSCA regulations. Storage facilities with secondary contaminant are utilized, washwaters are collected and properly disposed off-site by a vendor.

Use and storage of hazardous materials is decreasing as the installation prepares for closure and mission operations and tenant activities are discontinued. Cameron Station has an ongoing close-out survey program established for installation facilities being vacated by U.S. Army components and tenants. Hazardous materials found abandoned during these close out surveys are identified and arrangements are made for the proper disposal of the materials in compliance with regulatory requirements.

### ***3.2.3 Hazardous Waste Management***

Hazardous waste compliance programs at Cameron Station are conducted under AR 200-1, and the federal and state requirements found in 40 CFR 260 through 269, 40 CFR 117, 49 CFR 171 et seq., Department of Transportation regulations, and the Virginia Hazardous Waste Management Regulations.

The installation is currently classified as a large quantity generator of hazardous waste (producer of 1,000 kilograms or more of hazardous waste or more than one kilogram of acutely hazardous waste). The installation operates under USEPA identification number VA4210220139. In practice, Cameron Station currently generates significantly less than that amount of hazardous waste and could be classified as a small quantity generator (producer of 100 to 1,000 kilograms of hazardous waste). The volume of waste generated at the installation is anticipated to continue to decrease as the installation approaches closure and mission and tenant operations decline.

Cameron Station does not have any RCRA-permitted treatment, storage, or disposal facilities. Currently, one site located at Building 9, Door 34, is managed as a central collection station. Wastes are transported to Building 9 for less than 90-day storage. All hazardous wastes are manifested and transported by a certified contractor for disposal at a permitted off-site disposal facility.



Waste generated from IRP-associated activities and other on-site contractor operations is removed and properly disposed via the contractor's own subcontracted waste hauler.

Routine historical operations involving the handling of hazardous materials and wastes at Cameron Station has resulted in some localized soil and groundwater contamination. This contamination is being fully addressed through the installation environmental restoration program. These operating practices and related RI findings are identified below.

Pesticides and herbicides are stored and utilized at Cameron Station. Fencelines and roadways receive routine application. Pesticide storage areas were investigated during the RI and were designated OU 4. Two localized areas of elevated pesticides were identified. One area was behind Building 9 at Door 17. The other area was near Building 30 where a septic tank was found to have received pesticide rinsewater. Soil and groundwater samples collected near the tank contained low levels of pesticides and herbicides. Low levels of dioxins were detected across the site in the areas of fenceline application. However, these samples were lower than the USEPA cleanup level for dioxins. The existing pesticide contamination at Buildings 9 and 30 is currently being remediated as part of the BRAC IRP.

Waste battery acid generated at the motor pool and the PX Service Station was reportedly disposed of in two acid neutralization pits located near the northwest corner of Building 9 and at the north end of Building 23. The use of the acid pits at Buildings 9 and 23 has been discontinued. Remediation of the two sites is currently underway under the BRAC IRP.

The acid pits were discovered during the RI and designated OU 6. Each pit consists of a 3-foot diameter concrete casing placed into the ground to a depth of approximately 3 feet and filled with gravel and calcium carbonate. The calcium carbonate neutralized the acid from lead-acid batteries from automobiles and trucks serviced at the PX Service Station and the motorpool. A by-product of this process is lead which was detected in the soil beneath the pits. Petroleum waste may also have been placed in the acid pit located at Building 23. However, the petroleum releases from the leaking USTs at Building 23 may have contributed to this finding. Total petroleum hydrocarbons (TPH) were also detected in the acid pit at Building 23. Soil samples collected from the acid pit at Building 9 indicated that petroleum and lead-containing wastes were possibly disposed of there. Chemical contamination was not found in a monitoring well located less than 50 feet downgradient from the acid pit at Building 9.

Liquid chemical wastes historically generated at Cameron Station include photographic solutions, solvents and other wastes from print shops. In the past, some of these chemicals have been disposed of via discharge to the sanitary sewer system. These discharges have ceased. The sanitary and storm sewer systems were designated OU 5 during the RI. Sludge tanks and grease traps associated with the sewer system were found to be potential sources of contamination if demolition of the sewer systems occurred. As a result of this finding, the sludge tanks and grease traps associated with the sewer system were cleaned out.

TCE was detected in the storm sewer water and the storm sewer outfall into Cameron Lake. TCE and 1,1-dichloroethene (1,1-DCE) were detected in groundwater near Building 2. The exact source of this contamination has not been determined. The TCE groundwater



contamination will be remediated by a pump and treat system. The data generated from the operation of the system will be used to confirm previous assumptions regarding the extent of the TCE plume.

A separate area of benzene and 1,2-DCA was detected in groundwater extending across the installation from the western property boundary eastward to Building 7. The source of contamination is off-site, based on the direction of groundwater flow and the existence of the contamination at the up-gradient property boundary. VDEQ is currently investigating this contamination. Because the contamination originated outside of the installation boundary, remediation of the contaminated area is not the responsibility of the U.S. Army.

### ***3.2.4 Solid Waste Management***

Solid waste management compliance programs at Cameron Station are conducted under AR 200-1 and 420-47, the federal requirements found in 40 CFR 240-246 and 40 CFR 257-258, Department of Transportation regulations, and the Virginia Solid Waste Management Regulations. Solid wastes currently generated at Cameron Station are managed in accordance with all applicable state and federal regulations.

Solid waste generated at Cameron Station is not currently disposed of on-site. The waste is collected by a licensed solid waste hauler and transported to a local landfill.

Historically, solid waste has been disposed of on-site. Until the mid-1950s, solid wastes generated at Cameron Station were burned at two locations on the installation. The burn pits were located in portions of what is now Cameron Lake and an area adjacent to the landfill loading dock. Cameron Lake, which receives the majority of the stormwater runoff from the facility, was reportedly dredged in the mid- and late 1950s and again about 1980. Spoils were placed in the area which was north of the lake, between the parking lot and the eastern facility boundary. The burn pits and the dredge spoil disposal areas were designated OU 2 during the RI. The results of the RI indicated that there was no significant contamination at Cameron Station as a result of these disposal practices.

An inactive landfill is located in the southeastern corner of Cameron Station situated between Backlick Run, Cameron Run, and the railroad tracks. The landfill was reportedly used for nonhazardous solid waste disposal from 1955 to 1967. The landfill reportedly contains residual debris from burn pits, dredged lake and stream sediments and road construction material. The landfill area also served as a staging area for the City of Alexandria municipal road maintenance (soil, gravel, sand, etc.). This activity was discontinued in January 1994.

The landfill was designated OU 3 during the RI. The results of the RI for the landfill indicate that there was no widespread contamination of the subsurface soils or groundwater. Visual observations during the RI indicate that wastes normally associated with sanitary landfills (paper, household food wastes and debris, glass bottles and metal cans) are not present at the locations investigated. Methane gas was not observed during landfill boring activities. Furthermore, no leachate seeps have been observed at any time along the banks of the landfill at Backlick or Cameron Runs.



The landfill was included in the Cameron Station FS and was proposed to be capped in the DD. However, after further review by the U.S. Army, VDEQ, and USEPA, it was determined that there is no regulatory requirement or threat to human health or the environment from the landfill which necessitates the placement of a cap. The U.S. Army is currently proposing no further action for the OU with the exception of an erosion control measure (seeding the landfill) and monitoring. The DD is undergoing an amendment process to reflect this change of action. Cameron Station is currently developing a monitoring plan for the landfill to be reviewed by the BCT.

### *3.2.5 Polychlorinated Biphenyls (PCBs)*

PCB management compliance programs at Cameron Station are conducted under AR 200-1 and the federal requirements found in 40 CFR 761, and Department of Transportation regulations.

There are currently no transformers containing PCBs in service or being stored at Cameron Station. All transformers containing PCB oil that tested above the action level were removed in 1991.

Historically, transformers have been stored at two locations behind Building 9. One area is currently used for non-PCB containing transformer storage. The second area was used for PCB and non-PCB transformer storage prior to 1980. Both areas are outdoors and paved with asphalt. The two storage sites were evaluated in the RI. Based on RI results, remedial action was recommended at the second area due to confirmed PCB contamination.

Five gallons of PCB-containing material spilled at Door 17 behind Building 9 in 1979. This spill site was also investigated in the RI. PCBs were detected in the asphalt at the location of the spill, but no PCBs were found in the soil beneath the asphalt. Results of additional surficial soil sampling indicate that significant PCB contamination does not exist in this area; however, remediation was proposed for the site in the DD in order to make the site available for unrestricted use.

The PCB transformer service, storage and spill areas were designated OU 1 during the RI. Remediation of the OU, consisting of asphalt and soil excavation and off-site disposal at a RCRA thermal treatment facility is ongoing.

### *3.2.6 Asbestos*

ACM is regulated by USEPA, the Occupational Safety and Health Administration (OSHA), and the Commonwealth of Virginia. Asbestos at Cameron Station is also managed in compliance with the DA guidance "Lead-Based Paint and Asbestos in U.S. Army Properties Affected by Base Realignment and Closure."

Asbestos was designated OU 7 during the RI. A comprehensive asbestos survey of the facilities at Cameron Station was performed as part of that investigation. The survey followed protocols that met or exceeded the requirements of 40 CFR 763, the USEPA regulations promulgated under the Asbestos Hazard Emergency Response Act (AHERA). The purposes of the survey



were to identify friable and nonfriable ACM; provide options for abatement of asbestos; provide cost estimates for both abatement and operations and maintenance costs; and identify situations requiring immediate action in Cameron Station's 24 buildings. A material is considered to be ACM if it contains more than one percent asbestos.

The Cameron Station RI Asbestos Survey Final Report, dated February 1992, indicates that 14 of the 24 buildings at Cameron Station contain both friable and non-friable ACM. Only two locations with friable ACM were recommended for immediate action in the report: Building 5 and Building 7. The area in Building 5 was remediated November 1991 and the area in Building 7 was remediated January 1992. Installation-wide abatement of friable asbestos was initiated in January 1991 and was completed in the fall of 1994. A summary of the current comprehensive asbestos survey for the installation is provided in Appendix F.

### ***3.2.7 Radon***

The radon reduction program at Cameron Station is conducted under AR 200-1, Chapter 11, U.S. Army Radon Reduction Program.

A 90-day radon screening survey of all buildings on Cameron Station was completed 1989 in compliance with AR 200-1 requirements. All survey results were below the USEPA action level of 4 picoCuries per liter (pCi/L) for radon.

### ***3.2.8 RCRA Facilities***

There are no RCRA Treatment, Storage or Disposal facilities located on Cameron Station. As a result, a RCRA facility assessment has not been conducted at the installation and no solid waste management units (SWMUs) have been identified.

Hazardous waste generation and accumulation areas at the installation will cease operation when activities at the installation cease. Close-out surveys will be conducted at all facilities as installation and tenant activities are terminated. All wastes remaining on site at the installation will be disposed of in accordance with applicable state and federal regulations.

### ***3.2.9 Wastewater Discharges***

Wastewaters currently generated at Cameron Station include stormwater and sanitary sewer discharges. These discharges are managed in compliance with the Federal Water Pollution Control Act, CWA, and the National Pollution Discharge Elimination System (NPDES) Permit Program (40 CFR Parts 122, 125, and 136), National Pretreatment Standards (40 CFR Part 403), Commonwealth of Virginia wastewater regulations and AR 200-1, Chapters 3 and 8, and the City of Alexandria Sanitary Sewer Ordinance.

There are currently no point source industrial wastewater discharges generated at Cameron Station which discharge to a surface water body and require an NPDES permit. Discharges include pretreated washwaters from photograph facilities, pretreated washrack wastewaters and



sanitary wastewater. These wastewaters are discharged in compliance with the City of Alexandria sewer ordinance pretreatment criteria.

USACE is preparing a Virginia Pollutant Discharge Elimination System (VPDES) permit application for the future discharge of treated groundwater from the groundwater pump and treat system to be installed for OU 5. The FMMC DPW will submit the application to the state.

Due to the nature of activities currently being conducted at Cameron Station, a storm water permit is not necessary for the installation.

### ***3.2.10 Oil/Water Separators***

There is one oil/water separator at Cameron Station. The separator collects water from two vehicle wash racks at Building 9. The treated washwater is discharge to the City of Alexandria sanitary sewer. This oil/water separator is managed in accordance with applicable federal regulations including Section 313(a) of the CWA and regulations 40 CFR Parts 110, 112, and 122, Commonwealth of Virginia oil pollution prevention regulations, DoD directives, AR 200-1, and the City of Alexandria sewer ordinance. The separator was tested in March 1994 and met the requirements set forth in the City of Alexandria regulations.

### ***3.2.11 Pollution Prevention***

Pollution prevention at Cameron Station is managed through the installation hazardous waste management program in accordance with AR 200-1, Chapter 6, and applicable federal and state regulatory requirements.

The pollution prevention program at Cameron Station includes participation in a recycling program. Cameron Station recycles used oil and solvents, as well as contaminated groundwater which has resulted from OU 8 (PX Service Station). The groundwater extracted during product recovery during the early action is transported off-site to be distilled and filtered into a useable product. Installation photographic laboratory developing equipment are equipped with silver recovery systems. Aluminum cans, cardboard, and white paper are also recycled. The commissary and administration buildings produce the largest quantities of recyclable materials.

### ***3.2.12 NRC Licensing***

There are currently no sources which require Nuclear Regulatory Commission (NRC) licensing at Cameron Station.

### ***3.2.13 Mixed Waste***

There is no mixed waste generated at Cameron Station.

### ***3.2.14 Radiation***

There is no radioactive waste generated at Cameron Station.

### ***3.2.15 Lead-based Paint***

The Cameron Station lead-based paint management program is conducted in accordance with U.S. Department of Housing and Urban Development (HUD) guidelines for lead-based paint protection and the DA guidance "Lead-based Paint and Asbestos in U.S. Army Properties Affected by Base Realignment and Closure", dated June 1993.

A comprehensive lead-based paint survey has not been conducted at the installation. In lieu of quantitative data for the CERFA investigation, lead-based paint was assumed to be present in all installation buildings constructed prior to 1978. With the exception of Building 20 which was constructed in 1981, all the buildings at Cameron Station were constructed prior to this date and are believed to contain lead-based paint.

Regulations require that a lead-based paint survey be conducted for all those facilities with the potential to house children. Building 20 was identified for potential use by providers for the homeless during the McKinney Act screening process. Children may be present in the building if it is reused for this purpose. In compliance with regulatory requirements, a lead-based paint survey of the building was completed in September 1994. Survey results confirmed initial, year-built determinations that the building does not contain lead-based paint. With the exception of several stripes printed on the floor in the loading dock area, these stripes have been removed.

### ***3.2.16 Medical Waste***

There is no medical waste generated at Cameron Station.

### ***3.2.17 Unexploded Ordnance***

No unexploded ordnance (UXO) was identified at Cameron Station during the RI investigation.

### ***3.2.18 National Environmental Policy Act (NEPA)***

Cameron Station was included in the Comprehensive Base Realignment/Closure and Fort Belvoir Development EIS dated August 1991. In November 1993, the USACE, Baltimore District, released the Reuse and Disposal EA along with a FONSI. These documents satisfy federal and state requirements for NEPA documentation relative to the closure of the installation.

In addition to the generation of these primary NEPA documents, Cameron Station has a program in place to ensure that all applicable U.S. Army actions conducted at Cameron Station are properly evaluated and are in compliance with NEPA requirements.

### ***3.2.19 Air Emissions***

An additional environmental program at Cameron Station is the air quality program. Cameron Station has several small air emission sources. To ensure compliance with the CAA Amendments of 1990 and VDEQ regulations, the FMMC DPW has gathered air emissions data for the installation and will submit an air emissions permit application to the VDEQ by March



1995 for their review and permit requirements determination. The VDEQ has indicated that it does not anticipate that Cameron Station will require a permit due to the small number/size of the emissions sources at the installation.

### **3.3 Status of Natural and Cultural Resources Programs**

This section describes the current status of the natural and cultural resource program established at Cameron Station, including identification and management of vegetation, wildlife, wetlands, and other preservation areas; rare, threatened and endangered species; and cultural resources. Natural and cultural resources at Cameron Station are managed in accordance with AR 420-74 and 420-40, DoD Directive 4700.4 and 4710.1, and applicable federal and state regulations and statutes.

#### **3.3.1 Vegetation**

The vegetation present at Cameron Station was documented in a survey completed to support the Fort Belvoir Realignment EIS.

The natural environment at Cameron Station was altered significantly when the installation was first developed. Much of the area included wetlands that were filled to provide suitable foundations for development. The existing vegetation at Cameron Station is sparse, consisting primarily of lawns and ornamental plantings around the buildings. The area around Cameron Lake is planted with weeping willows (*Salix babylonica*). The native vegetation near the lake includes several oak species (*Quercus* spp.), sweet gum (*Liquidambar styraciflua*), tulip poplar (*Liriodendron tulipifera*), flowering dogwood (*Cornus florida*), flowering cherry (*Prunus maheb* var. *Kwanzan*), and red maple (*Acer rubrum*).

Currently, a grounds maintenance program is in place at the installation. The landscape at the installation is maintained by the Fort Myer DPW following program guidance.

#### **3.3.2 Wildlife**

The wildlife present at Cameron Station was documented in surveys completed to support the Fort Belvoir Realignment EIS.

Cameron Station is located in an urban area. Little natural habitat exists for wildlife at Cameron Station, except for Cameron Lake. The lake attracts large numbers of birds, including mallards, Canada geese, laughing gulls, and pigeons. Because of the installation's location within the Atlantic flyway, many other species of birds (ducks, geese, shorebirds, and passerines) may be sighted at Cameron Station intermittently during migration.

During the summer of 1993, several ducks that live around Cameron Lake died. Autopsies were performed by Walter Reed Army Medical Center, Department of Veterinary Pathology. It was determined that the ducks died as a result of stress from overcrowding. There was a lack of food in the intestines, a lack of body fat, and hemorrhaging in the neck of at least one bird, probably due to fighting during competition for food. A representative from the U.S.



Department of Agriculture (USDA) determined that the best solution to the problem of overcrowding would be to remove the domestic waterfowl from the lake. Thus, Cameron Lake would not attract as many migratory fowl during migration. Officials from the USDA removed several domestic birds from the lake in early March and in June 1994. The domestic ducks and geese were relocated to ponds at private farms, and the swans were moved to the Swan Research Center in Airlie, Virginia. USDA officials will return at a later date to determine if additional relocations are required.

Warning signs regarding the feeding of waterfowl have been posted to help discourage bird activity. Signs related to waterfowl traffic hazards are also provided around the lake to aid in the management of the wildlife attracted to the area.

### *3.3.3 Wetlands and Floodplains*

The filling of wetlands at Cameron Station occurred in the first half of the twentieth century, prior to the enactment of the CWA or any other protective legislation for wetlands. Stormwater control structures, channelization and filling have eliminated most wetland habitat from the post.

There has not been any formal wetlands survey or mapping conducted for Cameron Station. However, wetland environments currently exist at the installation in the area of Backlick and Holmes Runs and Cameron Lake. Because of the steep slopes along the two streams, wetland boundaries generally correspond with stream banks. Being a shallow water body, Cameron Lake is classified as a wetland palustrine open water habitat under the U.S. Fish and Wildlife Service (USFWS) classification system. The lake would be subject to permitting through the USACE if dredging or filling activities were required. Cameron Station has a program in place to evaluate the potential impacts of any U.S. Army activities which might occur in these wetland areas as part of its NEPA process.

### *3.3.4 Designated Preservation Areas*

The Chesapeake Bay Preservation Act was passed in 1988 by the Virginia General Assembly to protect water quality in the Chesapeake Bay. The City of Alexandria is one of 27 jurisdictions that were required to implement a local Chesapeake Bay Preservation Ordinance. The Ordinance, No. 3558, charges the Director of Transportation and Environmental Services with the responsibility of establishing technical standards for compliance with the Ordinance.

Alexandria has mapped Resource Protection Areas (RPAs) throughout the city. RPAs occur at Cameron Station and include a 100-foot buffer area along the Backlick Run and Holmes Run. The rest of the installation is within the Resource Management Area (RMA) of Alexandria. The only development permitted in RPAs are those that are water dependent and that are permitted in the underlying zoning district. Activities permitted within RMAs include those that are consistent with the underlying zoning of the area and conform to the general performance requirements in the ordinance.

The Cameron Station NEPA process includes the consideration of Chesapeake Bay Preservation Act requirements. The impacts of the Act on closure, disposal, and reuse were evaluated in the



installation Closure EIS and Disposal and Reuse EA. Chesapeake Bay Preservation Act land use restrictions were also considered in the community reuse planning process.

### 3.3.5 *Rare, Threatened and Endangered Species*

A Biological Assessment of Threatened and Endangered Species (BATES) prepared for Fort Belvoir in June 1993 to support the Fort Belvoir Realignment EIS included Cameron Station. The resource agencies indicated that no threatened or endangered species habitat is reported at Cameron Station.

Cameron Station's location within the Atlantic flyway increases the probability that migrating birds may be found at some time during the year. Species considered rare in Virginia and which may occur during migrations include: American coot (*Fulica americana*), double-crested cormorant (*Phalacrocorax auritus*), green-backed heron (*Butorides virescens*), least bittern (*Ixobrychus exilis*), purple finch (*Carpodacus purpureus*), magnolia warbler (*Dedroica magnolia*), and bank swallow (*Riparia riparia*). Forster's terns and bank swallows have been sighted during the spring and summer, foraging over the water at Cameron Lake and Backlick Run. Because of the absence of suitable breeding habitat, it is assumed that these birds are either nonbreeding or nesting elsewhere.

Rare, threatened or endangered species that may be present at Cameron Station during migrations are managed through the installation's wildlife management program which includes the maintenance of warning signs regarding feeding wild fowl and wild fowl traffic hazards around Cameron Lake. Significant federal actions at the installation which could impact wildlife at Cameron Station are evaluated through the NEPA process.

### 3.3.6 *Cultural Resources*

A Cultural Resources Investigation of Cameron Station was conducted in August 1992 by the KFS Historic Preservation Group. The investigation involved a document search, an extensive inventory of buildings and structures to determine potential eligibility for the National Register of Historic Places (NRHP), predictive modeling and an archaeological field investigation to determine whether archaeological resources are likely to remain intact under the deep layer of fill material which underlies the installation. The investigation revealed that Cameron Station does not contain cultural resources eligible for listing on the NRHP. The Virginia Department of Historic Resources has reviewed the final report of the investigation and concurred with this finding in a letter dated January 7, 1993. This letter is provided in Appendix F.

### 3.3.7 *Other Resources*

Cameron Lake was designed to be a stormwater detention pond. In the early 1970s, after the lake had been dredged, it was stocked by the installation to provide fish for a two-day catch and release tournament which occurred each year. Two fish, one bluegill and one catfish, were taken from Cameron Lake for analysis of metals, pesticides, PCBs, and dioxins/furans. Both fish contained pesticides, PCBs, inorganics, and dioxins/furans. The levels of these contaminants are to be expected based on their detection in lake sediments, and their detection



represents the natural processes of bioconcentration, bioaccumulation and biomagnification. The Food and Drug Administration (FDA) has set a tolerance limit for PCBs in edible portions of fish of 2 milligrams per kilogram (mg/kg) and for mercury of 1 mg/kg. Analytical tests were conducted on the edible portion of the fish. The detected concentrations of these chemicals were significantly lower than these limits. "No Fishing" signs were placed around the lake to discourage fishing and the resultant potential consumption of potentially contaminated fish. The fishing tournament no longer takes place.

### **3.4 Environmental Condition of Property**

In October 1992, Public Law 102-426, the CERFA amended Section 120(h) of the CERCLA and established new requirements with respect to contamination assessment, cleanup, and regulatory agency notification/concurrence for federal facility closures. CERFA requires the federal government, before termination of federal activities on the federal property to identify property where no hazardous substances were stored, released, or disposed of on the federal property. These requirements retroactively affect the U.S. Army BRAC 88 and BRAC 91 environmental restoration activities, and are being implemented at BRAC 93 sites concurrently with their ENPAs. The primary CERFA objective is for federal agencies to expeditiously identify real property offering the greatest opportunity for immediate reuse and redevelopment. Although CERFA does not mandate the U.S. Army transfer real property so identified, the first step in satisfying the objective is the requirement to identify real property where no CERCLA-regulated hazardous substances or petroleum products were stored, released, or disposed.

The U.S. Army has completed an investigation to identify the environmental condition of property at Cameron Station in compliance with CERFA. The final report was released in April 1994. CERFA investigations included the following assessment procedures:

- ▶ A review of historical installation records;
- ▶ Interviews with current and past installation employees;
- ▶ A visual site inspection of the installation.

During the CERFA investigation process, evidence was gathered that screened installation property into four categories, or parcel types. These categories are CERFA parcels, CERFA parcels with qualifiers, CERFA disqualified parcels, and CERFA excluded parcels as defined below.

An environmental condition of property map provided as Figure 3-2 identifies property at the installation based on these four parcel categories. The parcels are delineated using a 1-acre square grid for boundary definition. Where CERFA disqualified parcels and CERFA parcels with qualifiers have coincided, the overlapped area has been designated CERFA disqualified. A description of the four CERFA parcel categories is provided in the subsections below.





#### EXPLANATION

- Installation Boundary
- CERFA Parcel
- CERFA Parcel with Qualifier(s)
- CERFA Disqualified Parcel
- CERFA Excluded Parcel



0 425 850  
FEET

Environmental  
Condition  
of Property

Figure 3-2

### ***3.4.1 CERFA Parcels***

CERFA parcels are those portions of the installation real property for which investigation reveals no evidence of storage for one year or more, release, or disposal of CERCLA hazardous substances, petroleum, or petroleum derivatives and no evidence of being threatened by migration of such substances. CERFA parcels also include any portion of the installation which once contained safety-related hazards, including asbestos, UXO, lead-based paint, and radionuclides, but has since been fully remediated.

### ***3.4.2 CERFA Parcels with Qualifiers***

CERFA parcels with qualifiers are those portions of the installation real property for which investigation reveals no evidence of storage for one year or more, release, or disposal of CERCLA hazardous substances, petroleum, or petroleum derivatives and no evidence of being threatened by migration of such substances. Parcels with qualifiers do, however, contain safety-related hazards which may affect disposal and reuse such as the presence of asbestos, UXO, lead-based paint, radionuclides, radon, or stored (not in use) PCB-containing equipment.

### ***3.4.3 CERFA Disqualified Parcels***

CERFA disqualified parcels are those portions of the installation real property for which there is evidence of a CERCLA hazardous substance, petroleum, or petroleum derivative storage for one year, release or disposal, or threatened by such release or disposal. CERFA disqualified parcels also include any portion of the installation containing a PCB release or disposal, any explosive ordnance disposal locations, any storage sites of chemical ordnance, and any areas in which CERCLA hazardous substances or petroleum products have been released or disposed and subsequently fully remediated.

### ***3.4.4 CERFA Excluded Parcels***

CERFA excluded parcels are those portions of the installation real property retained by the Department of Defense, and therefore not explicitly investigated for CERFA. CERFA excluded parcels also include any portion of the installation which have already been transferred by deed to a party outside the federal government, or by transfer assembly to another federal agency.

### ***3.4.5 Suitability of Installation Property for Transfer by Deed***

SARA Title I, Section 120 to CERCLA addresses the transfer of federal property on which any hazardous substance was stored during any one year period, or was released or disposed. Section 120 also requires any deed for the transfer of this federal property to contain, to the extent such information is available based on a complete search of agency files, the following information:

- ▶ A notice of the type and quantity of any hazardous substance storage, release, or disposal,
- ▶ Notice of the time at which such storage, release, or disposal took place,



- ▶ A description of what, if any remedial action has occurred, and
- ▶ A covenant warranting that appropriate remedial action will be taken.

The U.S. Army has begun the identification of property suitable for transfer under CERCLA through the CERFA identification process. Those properties, designated CERFA parcels and CERFA parcels with qualifiers, have had no activities which could potentially preclude them from transfer under SARA Title I, Section 120 to CERCLA. CERFA disqualified properties consist of those which have experienced CERCLA hazardous substance storage, and/or petroleum product storage and/or releases.

The U.S. Army is currently in the process of refining the classification of those properties that are CERFA disqualified to better identify those suitable for transfer under CERCLA. Through this refinement process, properties are being defined as one of the following seven categories:

- ▶ **Category 1:** Areas where no storage, release or disposal of hazardous substances or petroleum products has occurred (including no migration of these substances from adjacent areas).
- ▶ **Category 2:** Areas where only storage of hazardous substances or petroleum products has occurred (but no release, disposal, or migration from adjacent areas has occurred).
- ▶ **Category 3:** Areas where storage, release, disposal, and/or migration of hazardous substances or petroleum products has occurred, but at concentrations that do not require a removal or remedial action.
- ▶ **Category 4:** Areas where storage, release, disposal, and/or migration of hazardous substances or petroleum products has occurred, and all remedial actions necessary to protect human health and the environment have been taken.
- ▶ **Category 5:** Areas where storage, release, disposal, and/or migration of hazardous substances or petroleum products has occurred, removal and/or remedial actions are under way, but all required remedial actions have not yet been taken.
- ▶ **Category 6:** Areas where storage, release, disposal, and/or migration of hazardous substances or petroleum products has occurred, but all required response actions have not yet been implemented.
- ▶ **Category 7:** Areas that are unevaluated or require additional evaluation.

Figure 3-3 which is provided in Appendix F, identifies property at Cameron Station based on the DoD seven parcel categorization. Under SARA Title I, Section 120 to CERCLA, those parcels which are Category 1, 2, 3, 4 and 5 (if the remedy in place has been approved by the Administrator), meet the CERCLA criteria of suitability for transfer. Category 6 and 7

properties which involve releases of hazardous substances as defined in CERCLA cannot be transferred under CERCLA until environmental restoration is initiated.

### 3.5 Status of Community Involvement

Community relations activities that have taken place at Cameron Station to date include the following:

- ▶ **NEPA Process.** Public scoping occurred during the development of both the closure EIS and disposal EA. Public hearings were held during execution of the EIS. Scoping letters were distributed and the Notice of Intent was published in the Federal Register. The Notice of Availability of the EA was published in local newspapers. Public comments were received on both the draft EIS and EA documents and were addressed by the U.S. Army.
- ▶ **Information Repositories.** A public repository for information has been established at the Alexandria Library, Ellen Coolidge Burke Branch, 4701 Seminary Road, Alexandria, Virginia 22304. It contains information relative to environmental activities at Cameron Station.
- ▶ **Administrative Record.** An Administrative Record File has been established at Cameron Station in accordance with CERCLA requirements. A copy of the Administrative Record File index is on file at USEPA Region III headquarters.
- ▶ **Mailing List.** A mailing list of all interested parties in the community is maintained by the MDW Public Affairs Office and updated regularly.
- ▶ **Fact Sheets.** Fact sheets will be distributed to the RABs, Reuse Task Force, and anyone requesting information.
- ▶ **RAB.** To promote increased public involvement and enable the continued flow of information, concerns, and needs between the community and Cameron Station, a RAB has been formed and has met monthly since September 1994. U.S. Army, USEPA, VDEQ, City of Alexandria representatives, Task Force to Monitor the Closing of Cameron Station representatives and members of the local community make up this committee. During the formation of the RAB, particular attention was placed on insuring balanced representation from all community groups. The RAB meets at the DLA Command Conference Room in Building 3 at Cameron Station.

The RAB will meet until the time of installation closure. At that time, the community members will determine the need for continuing the RAB.

- ▶ **Community Outreach and Open Houses.** Site visits and public informational meetings are scheduled periodically to augment the RAB meetings and inform the community on some of the technical aspects of the projects at Cameron Station.



- ▶ **Public Hearings.** The Proposed Plan was distributed to solicit public comments regarding the proposed remedial alternatives for contaminated soil and groundwater at Cameron Station. A public comment period was in effect from March 4 through May 3, 1993 and the opportunity for a public meeting to be held in the community was offered. The community did not request such a meeting.
  
- ▶ **Task Force to Monitor the Closing of Cameron Station.** In response to the listing of Cameron Station in the Base Realignment and Closure Report in 1988, the City of Alexandria formed the Task Force to Monitor the Closing of Cameron Station (also known as the Cameron Station Reuse Task Force). The purpose of the Task Force is to monitor the closing of Cameron Station and work with the DoD Office of Economic Adjustment to devise a reuse plan for the installation. The Task Force is made up of nine members, including:
  - ▶ 1 Representative from the Federation of Civic Associations
  - ▶ 1 Representative from the Alexandria Park and Recreation Commission
  - ▶ 1 Representative from the Alexandria Chamber of Commerce
  - ▶ 1 Representative from the Holmes Run Committee
  - ▶ 3 Citizens-at-Large
  - ▶ 2 City Council Members.

Since 1988, the Task Force has worked closely with the U.S. Army and the Office of Economic Adjustment to develop a plan for the best use of Cameron Station property after closure.

Alexandria's many civic and neighborhood associations include the Holmes Run Committee (representing 12 civic associations and neighborhoods surrounding Cameron Station), as well as the Strawberry Hill, 4600 Duke Street, Brookville/Seminary Valley, and Seminary Hills Civic Associations.

- ▶ **Public Involvement and Response Plan.** A Public Involvement and Response Plan (PIRP) was prepared in April 1993. The goal of the Cameron Station PIRP is to provide an effective mechanism for communication and exchange of information among the local community and civic associations; on-post military and civilian employees; U.S. Army; and diverse federal, state, city, and local agencies. This PIRP has been designed to fulfill requirements of:
  1. CERCLA of 1980 (Public Law 96-510), as amended, including Section 117 of SARA of 1986 (Public law 99-499, October 17, 1986).
  2. The Defense Authorization Amendments and Base Closure and Realignment Act of 1988 (Public Law 100-526).
  3. Headquarters, Department of the Army (HQDA) Public Affairs Plan 10-1-87: IRP, October 1987.

4. USEPA guidance and publications, including Public Involvement in the Superfund Program (WH/FS-86-004) and CERCLA Compliance With Other Environmental Statutes (*Federal Register* 50 (29): 5928-5932).
5. The USEPA publication *Community Relations in Superfund: A Handbook* (Office of Solid Waste and Emergency Response (OSWER) Directive Number 9230.0-3B, January 1992-Final).

This PIRP has the following specific objectives:

1. Ensure the public understands that personal and community health and interests are of paramount concern to the U.S. Army.
2. Inform and educate local residents, on-post employees, and local officials of the RD/RA process.
3. Provide local residents, on-post employees, and federal, state, city, and local regulatory officials an opportunity to review and comment on the studies at Cameron Station and on suggested remedial action alternatives and decisions.
4. Keep the U.S. Army sensitive to and informed about changes in community concerns, attitudes, information needs, and activities regarding Cameron Station and use their concerns as factors in evaluating modifications of the PIRP as necessary to address these changes.
5. Effectively serve the community's information needs and address citizen inquiries through prompt release of factual information through the media and other information dissemination techniques.
6. Effectively respond to the needs of the media by providing timely response to inquiries and requests for interviews and briefings, thereby resulting in far and accurate reporting of activities at Cameron Station.
7. Create and maintain, through an active public affairs program, a climate of understanding and trust with the aim of providing information and opportunities for comments and discussion.
8. Ensure that appropriate federal, state, city, and local elected officials are informed of results of the investigations and recommended remedial actions.
9. Provide a single entity for dissemination of information for matters regarding the progress of the contamination assessments, remedial actions, and other decisions at Cameron Station.
10. Identify issues and potential areas of concern and develop and implement objective means to avoid or resolve conflict.



**This page intentionally left blank.**

# CHAPTER 4

## ► INSTALLATION-WIDE STRATEGY FOR ENVIRONMENTAL RESTORATION ◀

This chapter describes the installation-wide environmental restoration and compliance strategy for Cameron Station.

Prior to the official announcement of closure in December 1988, restoration projects were underway to identify, characterize, and remediate environmental contamination at Cameron Station. The restoration strategy implemented during this period focused on protection of human health and the environment at the installation with consideration of the ongoing and continued use of the installation by the U.S. Army. With the closure announcement, the installation's strategy shifted from supporting an active U.S. Army mission to responding to disposal and reuse considerations. In March 1989, USAEC was assigned the responsibility for managing the BRAC IRP. The Cameron Station environmental restoration strategy was modified to address the new issues of closure and reuse. This strategy has included the completion of an installation-wide RI/FS under the direction of the USAEC, the development of an installation-wide DD, preparation of RDs and implementation of RAs.

Cameron Station was well advanced in the environmental restoration process prior to the initiation of the BCP. Upon formation of the BCT, a "Bottom Up" review of the restoration strategy for Cameron Station was completed to verify that the appropriate restoration actions and regulatory programs applicable to the areas of environmental contamination have been considered and that all possible fast-track cleanup opportunities have been taken in the Cameron Station environmental restoration program.

The overall environmental restoration and compliance strategy for Cameron Station is currently reviewed by the BCT and the project team (see Section 1.3). The USAEC continues to provide assistance in the area of site investigations support at the installation. The USACE, Baltimore District is providing support in areas including RD, RA, compliance program management, and natural and cultural resource management. Cameron Station's strategy is designed to insure that all regulatory requirements are met and that adequate and cost effective restorations are implemented as quickly as possible to provide for the expedited disposal and reuse of Cameron Station in compliance with U.S. Army and community goals. The current strategy provides for the completion of all site restoration activities by installation closure in September 1995 with the exception of groundwater remediation which is anticipated to continue well past closure.

The following sections define various elements of the Cameron Station environmental restoration strategy including the designation of zones and operable units, sequencing of OU restoration actions, early action programs, the remedy selection approach process and integrated environmental compliance planning. Schedules for the implementation of this strategy are described in Chapter 5.



## 4.1 Zone/OU Designation and Strategy

The designation of zones and OUs as part of the environmental restoration process has been found to be valuable in evaluating sites, and developing cleanup strategies at installations. Zones define an installation's investigative strategy. They are tools for organizing and defining areas of investigation. OUs define an installation's remedial strategy. They are derived from an evaluation of hydrogeologic and chemical analytical data within an investigative zone, or by comparing data between zones. OU types may be based on geographic area, common media (soil, groundwater, surface water, other), common treatment technology, priorities, or schedules. Properly defined, OUs establish a logical sequence of discussions that address contamination releases in a comprehensive fashion.

The strategies for designating zones and OUs at Cameron Station are described in the following subsections.

### 4.1.1 Zone Designations

Zone designations were unnecessary at Cameron Station because of the relatively small size of the installation. All sites were effectively investigated during the RI as a single unit.

### 4.1.2 OU Designations

Twelve OUs were designated during the RI as sources for potential contamination at Cameron Station. Factors considered in the OU designation process at Cameron Station included:

- ▶ Geographic location
- ▶ Common contaminants or contamination source;
- ▶ Common contaminated media/pathways;
- ▶ Common treatment technology.

The following is a summary of the twelve operable units:

- ▶ **OU 1 - PCB Transformer Service, Storage, and Spill Areas.** This OU included known or suspected PCB spill areas, past and present transformer storage locations, and areas beneath or immediately adjacent to present and former pole, platform or pad-mounted transformers. These sites were defined as an OU because they had common contaminant sources, common contaminated media, and could potentially require a common treatment technology.
- ▶ **OU 2 - Cameron Lake, Burn Pits, and Dredge Spoil Disposal Areas.** Portions of what is now Cameron Lake, an area adjacent to the landfill loading dock formerly used to dispose of certain wastes by burning, and the Cameron Lake dredge disposal area were defined as an OU because they had a common contamination source, common contaminated media, and could potentially require a common treatment technology.

- ▶ **OU 3 - Landfill.** The inactive landfill located in the southeastern corner of the installation was identified as an OU based on its discrete geographic location, contaminant pathways and potential restoration requirements.
- ▶ **OU 4 - Pesticide Use and Storage Areas.** This OU includes those areas identified as potentially containing pesticides (including herbicides). These areas include past and present storage facilities, as well as areas such as fence lines that have received routine application of these chemicals. These pesticide sites were grouped as an OU because they had a common contaminant type.
- ▶ **OU 5 - Sanitary and Storm Sewer Systems.** OU 5 consists of the sanitary and storm sewer systems at Cameron Station. The OU was defined because the two sewer systems were similar contaminant sources, had common contamination media/pathways and the potential for common or similar treatment technologies. RI investigations identified a TCE groundwater contamination plume attributable to the OU. During the RI, a benzene groundwater plume from an offsite source was also identified. The plume was also included in OU 5.
- ▶ **OU 6 - Acid Pits.** Two acid pits were discovered during the RI. The two pits are located near the northwest corner of Building 9 and at the north end of Building 23. The acid pits had common contaminant sources, contamination type, and contaminant media and the potential for the same treatment technologies. As a result, they were grouped as one OU.
- ▶ **OU 7 - Asbestos in Buildings.** This OU is not site-specific. It includes all buildings with friable ACM. ACM in buildings was a unique contaminant source with particular treatment requirements and was therefore identified as a distinct OU. Restoration of this OU will be handled under a single contract.
- ▶ **OU 8 - PX Service Station and Building 2 Underground Storage Tanks.** OU 8 consists of the PX Service Station (Building 23) and the USTs at Building 2. This OU was created to define those sites which exhibited evidence of contamination due to releases from USTs. These sites had common contaminant source types, common contaminant media, and could potentially require a common treatment technology.
- ▶ **OU 9 - Road Oiling and Fly Ash Disposal Areas.** This area consisting of unpaved roads near Building 9 was defined as an OU based on geographic location and common contaminant media.
- ▶ **OU 10 - Surface Water Areas.** This OU consists of Backlick Run, Holmes Run, and Cameron Run. These sites were logically grouped as one OU because if they had exhibited any significant evidence of contamination, they would have common contaminant media and exposure pathways, and potentially common treatment technologies.



- ▶ **OU 11 - Pigeon Roosting in Building 21.** The building had a unique contaminant source and contaminant type that required a specific RA (bird waste removal) and was therefore identified as an OU.
- ▶ **OU 12 - Other Underground Storage Tanks.** This OU is not site-specific. It consists of all USTs with the exception of those identified as having experienced releases at the PX Service Station and Building 2 (OU 8). OU 12 includes operating USTs and USTs that are known or believed to have been abandoned. These tank sites were identified as an OU because they required UST specific investigation, upgrade, and removal actions which could be handled under one RA contract.

Site investigations at Cameron Station have been comprehensive. As a result, the identification of additional sites and OUs is not anticipated. As indicated above, all OUs at Cameron Station with the exception of OU 7 (Asbestos in Buildings) and OU 12 (Other Underground Storage Tanks) are generally site-specific. Any additional OUs which could be designated in the future are likely to be site-specific. Each of the OUs designated at Cameron Station are identified in Figure 3-1. Individual maps of each OU showing OU location, size, and RI sampling points are provided in Appendix F. The relationship between restoration sites, zones, OUs and reuse parcels is depicted in Table 4-1.

**TABLE 4-1. RELATIONSHIP BETWEEN RESTORATION  
SITES, OUS, AND PARCELS**

Reuse Parcel	Zone	Operable Unit	Restoration Site
A, B, C	1	1	OU 1
A	2	2	OU 2
A	3	3	OU 3
A, B, C	4	4	OU 4
A, B, C	5	5	OU 5
A, C	6	6	OU 6
A, B, C	7	7	OU 7
A, B	8	8	OU 8
B, C	9	9	OU 9
A, B, C	10	10	OU 10
B	11	11	OU 11
A, B, C	12	12	OU 12

### 4.1.3 Sequence of OUs

A comprehensive environmental restoration strategy has been developed by the Cameron Station BCT. This strategy consolidates AREEs identified in the Enhanced PA into OUs for investigation in the RI/FS (see Section 4.1.2), and then defines a logical sequence of OU remedial action to address all past releases associated with these sites. The following sections outline this sequencing strategy.

**4.1.3.1 Sequencing Strategy.** The Cameron Station BCT has developed an approach to identify the logical sequence of OU site investigation and restoration activities.

All twelve OUs at Cameron Station were assessed at the same time and included in the RI, the FS, Proposed Plan (PP) and installation-wide DD. The sequencing of OUs was determined based upon the following criteria:

- ▶ Expedited completion of RAs to mitigate any identified risk to human health and the environment
- ▶ Consideration of community reuse planning priorities
- ▶ Completion of site restoration at locations where environmental condition directly impacts reuse in advance of long-term site restoration activities that may not affect site reusability
- ▶ Use of existing contracts with modifications to expedite the restoration process.

Results from the RI indicate that OUs 2, 9, 10, and 11 do not require RA. These OUs were therefore dropped from consideration in the environmental restoration sequencing process. OU 3, the former landfill, was evaluated in the FS and included in the PP and DD but has been more recently proposed as NFA. The DD is currently undergoing an amendment process to reflect this status. This site has therefore also dropped from consideration in the sequencing process. A sequencing strategy for the remaining OUs has been prepared using the criteria identified above. Based on this strategy, remediation is expected to be complete for OUs 1, 4, 6, 7 and 12 by Cameron Station's closure date of September 1995. RA for OUs 5 and 8 which involve groundwater remediation will extend past closure. RA has begun for OUs 1, 4, 6, and 8 (PX Service Station and Building 2)). RA is complete for OU 7. Reviews of the RAs will be performed by the appropriate regulators.

The OU cleanup sequence at the installation is summarized in Table 4-2.

**TABLE 4-2. CLEANUP SEQUENCE**

Reuse Parcel	OU	Environmental Risk	Reuse Priority	Cleanup Sequence	Reconcile Comments
A, B, C	1	None after remediation	Undetermined	1	RA Underway
A, B, C	4	None after remediation	Undetermined	2	RA Underway
A, B, C	5	Groundwater contamination	Undetermined	5	RA will continue past closure



TABLE 4-2. CLEANUP SEQUENCE

Continued

Reuse Parcel	OU	Environmental Risk	Reuse Priority	Cleanup Sequence	Reconcile Comments
A, C	6	None after remediation	Undetermined	3	RA underway
A, B, C	7	None after remediation	Undetermined	4	RA underway
A, B	8	Groundwater contamination	Undetermined	8	Early actions completed; RA will continue past closure
A, B, C	12	None after remediation	Undetermined	7	RA to begin spring 1995

Key: NA - Not Applicable.

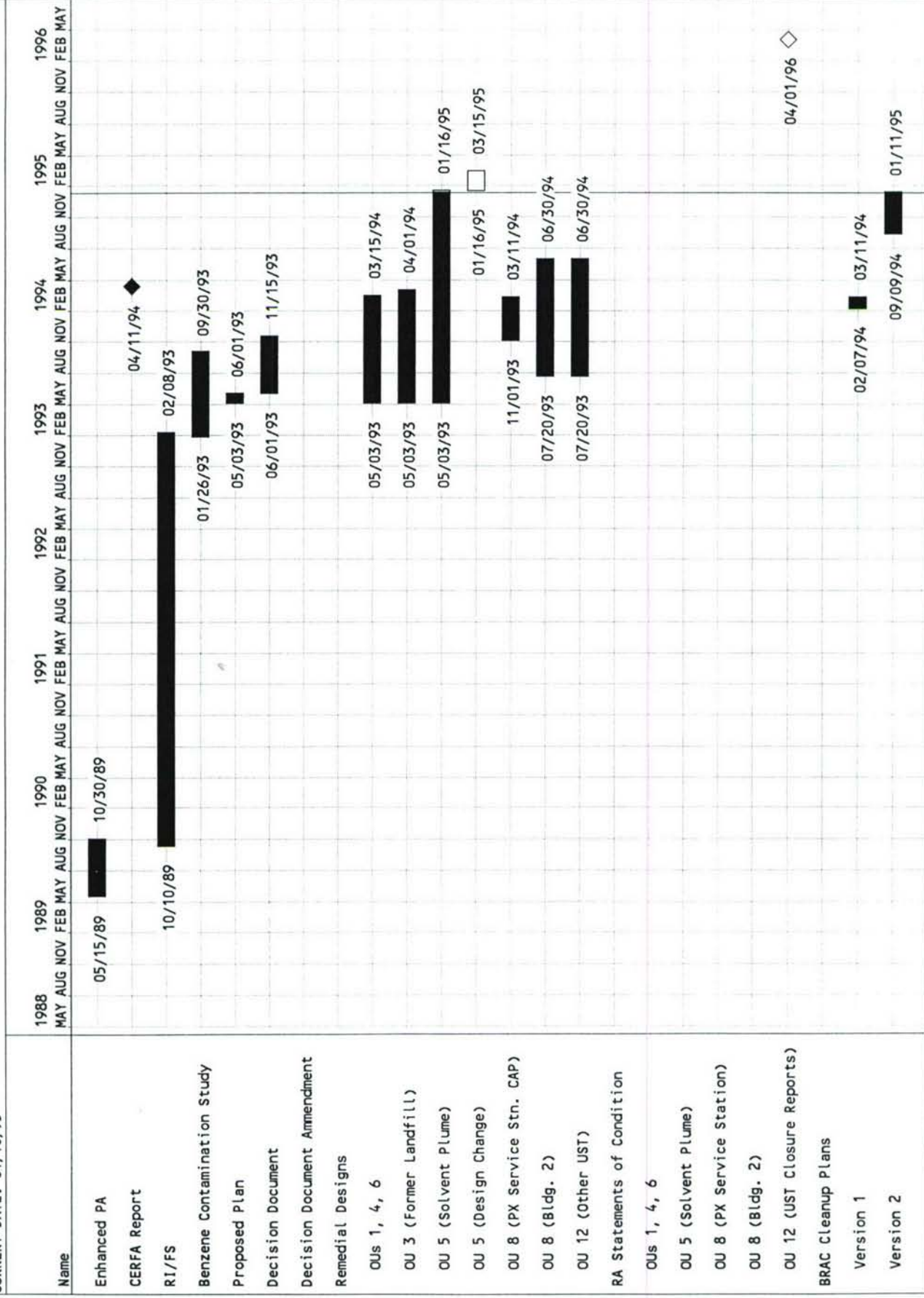
**4.1.3.2 Remediation Timelines and Documents.** A number of environmental studies have been completed at this installation in an effort to identify sites, determine degree and extent of contamination, evaluate risk, and identify and implement RAs. Figure 4-1 identifies the timeline for the completion of those documents.

The schedule was developed using a critical path analysis method with the following components:

- ▶ **Critical.** Critical jobs are those in which any extension in their duration will cause an equivalent delay in the project. Often referred to as the critical path.
- ▶ **Noncritical.** Noncritical jobs are usually subtasks required to accomplish the critical job. The start and end dates may be varied within the project parameters.
- ▶ **Baseline.** A set of "original" schedule dates that can be compared with the current schedule to determine if the project has slipped.
- ▶ **Completed Duration.** A measure in time periods of the portion of a job that is completed.
- ▶ **Milestone.** A project event that represents a checkpoint, a major accomplishment, or a deliverable result.
- ▶ **Total Float.** The total length of time that a noncritical job can be delayed before it causes the project or a critical job to slip or causes a job to not meet its target date.
- ▶ **Free Float.** The length of time a noncritical job can be delayed without affecting another job.
- ▶ **Delay.** A waiting period that prevents the job from starting at its earliest possible start time.

PROJECT: Cameron Station  
 MANAGER: Kelly Koontz  
 CURRENT DATE: 01/10/95

Figure 4-2 Primary Documents





**This page intentionally left blank.**

- **Conflict.** The amount of time a job overruns its target date. This is also called "negative float".

The graphical information regarding the primary documents generated for each OU at Cameron Station which is shown in Figure 4-1 is summarized below.

- **OU 1 - PCB Transformer Service, Storage, and Spill Areas**  
 RI Report Completed - February 1993  
 FS Report Completed - February 1993  
 Proposed Plan Completed - June 1993  
 Decision Document Completed - November 1993  
 Remedial Design Completed - March 1994
- **OU 3 - Landfill**  
 RI Report Completed - February 1993  
 FS Report Completed - February 1993  
 Proposed Plan Completed - June 1993  
 Decision Document Completed - November 1993  
 Remedial Design Completed - April 1994  
 DD Amendment TBD
- **OU 4 - Pesticide Use and Storage Areas**  
 RI Report Completed - February 1993  
 FS Report Completed - February 1993  
 Proposed Plan Completed - June 1993  
 Decision Document Completed - November 1993  
 Remedial Design Completed - 1994
- **OU 5 - Sanitary and Storm Sewer Systems**  
 RI Report Completed - February 1993  
 FS Report Completed - February 1993  
 Proposed Plan Completed - June 1993  
 Decision Document Completed - November 1993  
 Remedial Design March 1995
- **OU 6 - Acid Pits**  
 RI Report Completed - February 1993  
 FS Report Completed - February 1993  
 Proposed Plan Completed - June 1993  
 Decision Document Completed - November 1993  
 Remedial Design Completed - 1994
- **OU 7 - Asbestos in Buildings**  
 RI Report Completed - February 1993  
 FS Report Completed - February 1993  
 Proposed Plan Completed - June 1993



Decision Document	Completed - November 1993
▶ <b>OU 8 - PX Service Station and Building 2 USTs</b>	
RI Report	Completed - February 1993
FS Report	Completed - February 1993
Proposed Plan	Completed - June 1993
Decision Document	Completed - November 1993
<b>Building 2</b>	
Remedial Design	Completed - June 1994
<b>PX Service Station</b>	
Remedial Design	Completed - March 1994
▶ <b>OU 12 - Other USTs</b>	
RI Report	Completed - February 1993
FS Report	Completed - February 1993
Proposed Plan	Completed - June 1993
Decision Document	Completed - November 1993
Remedial Design	Completed - March 1994

#### 4.1.4 Environmental Restoration Early Actions Strategy

A number of early actions have been completed at Cameron Station since the installation was listed for closure in 1988. These early actions included UST removals, installation and operation of soil vapor extraction systems and petroleum recovery wells, soil excavation and thermal desorption at the PX Service Station and Building 2. These early actions are described in detail in Chapter 3.

The environmental studies to characterize environmental conditions at Cameron Station have been comprehensive. It is not anticipated that any currently unidentified contamination will arise. Those sites which have been identified at Cameron Station are being effectively managed through the implementation of the restoration strategy described in Section 4.1.3 of this plan. Should any additional environmental contamination be identified at the installation, the BCT will evaluate the need for early actions. The strategy for developing these early actions will be based on the risk posed to human health and the environment, and the impacts that the action, both negative and positive, will have on future use of the parcel. Any such future environmental restoration early actions planned for the installation will be identified in Table 4-3.

**TABLE 4-3. ENVIRONMENTAL RESTORATION PLANNED EARLY ACTIONS**

Site	UST No. (or other unit identifier)	Action	Objective	Time Frame
	There are currently no environmental restoration early actions planned at Cameron Station. Future changes will be reflected here.			

#### **4.1.5 Remedy Selection Approach**

Site investigations at Cameron Station, including the Enhanced PA and RI, have been completed. Remedies for each of the OUs have been selected in accordance with statutory and NCP criteria and CERCLA as described below.

A FS was prepared which evaluated restoration alternatives for each OU identified at the installation based on criteria including regulatory compliance, effectiveness, implementability, and cost. Preferred remedies for each OU were identified in a proposed plan dated February 1993. A public comment period was held to solicit community input in the remedy selection process. Following the public comment period, a DD was prepared which identified the chosen RA for each OU. The DD which was released in November 1993 is currently undergoing an amendment process to change the status of OU 3, the former landfill, to NFA.

Particular attention was given to the following during the evaluation of alternatives and the selection of remedies:

- ▶ **Applicable or Relevant and Appropriate Requirements (ARARs).** Site-specific applicable requirements for anticipated RAs were identified throughout the RI/FS process. The effectiveness of alternatives in reducing concentrations of contaminants to chemical-specific ARARs were evaluated. Chemical-specific ARARs "set health- or risk-based concentration limits or discharge limitations in various environmental media for specific hazardous substances, pollutants, or contaminants". Action-specific and location-specific ARARs were also identified and evaluated. A list of these ARARs is provided in Appendix F.
- ▶ **Future Land Use/Risk Assessment.** The reuse of any parcel of land defines the required level of remediation. Risk assessment exposure scenarios were developed during the RI which were consistent with reuse of the installation as proposed in the community reuse plan.
- ▶ **Applicable Remedies.** The FS for the installation identified and screened the feasibility of a variety of remedial technologies to address the potential risk to human health and the environment posed by the contamination present at Cameron Station. The FS considered factors including cost, implementability and treatment effectiveness. The most applicable alternatives were determined through the PP process and were identified in the DD.
- ▶ **POL Remedies.** Source-specific actions for POLs are being addressed under the state UST program as POL releases at Cameron Station have occurred mostly as a result of leaking USTs. Large-scale groundwater RAs as a result of leaking USTs (OU 2, OU 5, and OU 8) are incorporated into the appropriate BRAC IRP OU groundwater actions identified in the DD.



The Cameron Station BCT involved all parties who have an impact on the remedies selected for Cameron Station in the remedy selection process. The U.S. Army BEC will continue to hold Project Team meetings to discuss progress of the DD, RDs, and RAs at the installation to ensure appropriateness of each remedy with respect to the criteria identified above.

## 4.2 Compliance Strategy

This section describes the strategies for addressing compliance-related environmental issues at Cameron Station prior to installation closure and/or property transfer. These environmental compliance strategies have been developed to ensure that the installation is compliant with federal and state regulatory programs, DoD, and U.S. Army directives and regulations throughout the BRAC process.

An important element in the Cameron Station compliance program is the identification and implementation of compliance-related early actions to remove contamination sources and reduce risk posed by releases or potential releases. A number of early actions have been completed at the installation (see Section 3.1). Presently, no further opportunities for the completion of compliance early actions have been identified. Any future early actions will be identified in Table 4-4.

**TABLE 4-4. ENVIRONMENTAL COMPLIANCE PLANNED EARLY ACTIONS**

Site	UST No.	Action	Objective	Time Frame
	There are currently no environmental compliance early actions planned at Cameron Station. Future changes will be reflected here.			

A detailed discussion of strategies and schedules for individual compliance programs is provided in the following sections.

### 4.2.1 Storage Tanks

The following strategies have been developed to manage USTs and ASTs at Cameron Station.

**4.2.1.1 USTs.** UST program compliance activities at Cameron Station will be continued at numerous sites. As described in Section 3.2.1, a CAP separate from the installation DD is currently in place to remediate contamination caused by USTs at OU 8, the PX Service Station and Building 2. Remediation of this OU has been identified as separate from the DD by the Water Division of VDEQ. The CAP outlines a soil vapor extraction system for soil remediation, and a pump and treat system through carbon for groundwater for the PX Service



Station. A soil vapor extraction system is specified in the CAP to remediate the soil at Building 2. RA for the OU will be ongoing at the time of property transfer, September 1995. Final cleanup levels have yet to be established by VDEQ.

The management strategy for the remainder of the installation USTs, OU 12 (Other Underground Storage Tanks), was developed to meet two requirements: accommodate the installation's mission which includes the provision of heat and fuel to buildings at Cameron Station while the post is still active; and closure of all UST systems prior to installation closure. Cameron Station will have an active mission until September 1995. The active USTs at the installation will be removed when heat is no longer needed. Removal is estimated to begin during April 1995. All currently inactive and abandoned tanks will also be removed under this contract. UST systems will be removed in compliance with VDEQ regulatory requirements for tank closure. Tank integrity testing conducted during the RI/FS and again in 1994 indicated that the active tanks associated with OU 12 are tight and that there is no evidence that the tanks are leaking. The discovery of significant contamination is therefore not anticipated during the removal action.

**4.2.1.2 ASTs.** The three aboveground storage tanks at Cameron Station will remain active and in compliance until the installation's closure date of September 1995. There is currently no plan to remove these tanks.

#### **4.2.2 Hazardous Substances Management**

Hazardous substances at Cameron Station will continue to be managed in compliance with federal requirements outlined in the SARA Title III and SPCC requirements in 40 CFR 110 and 112, VDEQ regulations, AR 200-1 and other applicable federal, state, and local regulations.

Hazardous materials inventories and MSDS sheets will continue to be maintained at the installation until closure. Spill response coordination with local emergency response agencies will continue. Cameron Station will continue to follow the guidance set forth in the Cameron Station Pesticide Management Plan when dealing with pesticides. Tenants have been instructed that all hazardous materials currently sited at their locations must be managed properly in accordance with applicable regulations. As a precaution, the installation will be conducting a close-out survey of each tenant activity to ensure that there is no hazardous material left after the tenants vacate the property.

#### **4.2.3 Hazardous Waste Management**

Hazardous waste generated at Cameron Station will continue to be managed in compliance with federal, state, and U.S. Army regulations. Wastes generated at the installation will be properly stored at Building 9 for less than 90 days before being transported off-site for disposal by a licensed hazardous waste vendor. The tenant close out surveys for hazardous materials to be conducted after tenants vacate will include hazardous waste.

Much of the hazardous waste management that will occur prior to and after closure will be related to RAs. Remediation of OU 4, Pesticide Use and Storage Areas, and OU 1, the PCB Transformer Service, Storage, and Spill Areas, will involve the excavation of contaminated soil



for disposal off-site at a RCRA-permitted landfill. Remediation of OU 6, the Acid Pits, will involve excavation of contaminated soil for off-site disposal through thermal oxidation and solidification.

#### ***4.2.4 Solid Waste Management***

Cameron Station will continue to utilize a contractor for the collection and disposal of solid waste generated at the installation. In addition, tenant agencies have been instructed that, until they vacate, all solid wastes currently sited at their locations must be managed properly in accordance with applicable regulations.

The RI/FS determined that remediation of the soils or groundwater associated with Cameron Lake, burn pits, and dredge disposal areas (OU 2) which were formerly used for solid waste disposal, was not warranted because the OU did not pose a threat to human health or the environment. The decision of no further action is reflected in the DD.

The former landfill (OU 3) was investigated during the RI/FS. RI results indicated that no widespread contamination has occurred in the landfill subsurface soils or the groundwater. Capping was originally proposed for the OU in the DD. The DD is undergoing an amendment process recommending NFA for OU 3 because there are no regulatory requirements for the cap and because the site does not present a threat to human health and the environment. The U.S. Army will continue to monitor the landfill. Cameron Station is currently developing a monitoring plan for the landfill which will be reviewed by the BCT.

#### ***4.2.5 Polychlorinated Biphenyls (PCBs)***

There is no electrical equipment containing PCBs currently at Cameron Station.

Based on RI/FS results, significant PCB contamination from former PCB equipment and equipment storage areas does not exist. Remediation is planned for a former PCB spill site behind Building 9, at door 17 in order to make the site available for unrestricted use. Approximately 10 cubic yards of PCB-contaminated soil will be removed and hauled to an off-site RCRA Subtitle C landfill. The excavated area will be backfilled with clean soil and covered with asphalt. The excavation should be completed by December 1994.

#### ***4.2.6 Asbestos***

Asbestos at Cameron Station will continue to be managed in compliance with the DA guidance "Lead-Based Paint and Asbestos in U.S. Army Properties Affected by Base Realignment and Closure", dated June 1993. The U.S. Army policy on asbestos is to manage in place. Work has been completed to encapsulate friable asbestos where possible; remove any remaining friable asbestos which could not be encapsulated; and maintain the integrity of all asbestos determined to be in good condition until transfer of the property.

The Fort Myer DPW will continue to monitor the condition of asbestos at Cameron Station until closure and will complete any additional abatements as necessary to maintain the integrity of asbestos at the installation.

#### ***4.2.7 Radon***

No radon was detected during the Radon Survey performed in 1989; therefore, radon is not a compliance program requiring further action at the installation.

#### ***4.2.8 RCRA Facilities***

There are no RCRA Treatment, Storage or Disposal facilities located at Cameron Station. Hazardous waste generation and accumulation areas at the installation will cease operation when activities at the installation cease. At closure, all wastes will be properly manifested and transported off-site for disposal at a licensed disposal facility. Until that time, wastes will be managed in accordance with applicable state and federal regulations.

#### ***4.2.9 Wastewater Discharges***

Remedial activities which include discharge of treated wastewaters to surface waters require a VPDES permit. The USACE is currently preparing a VPDES permit application for the future groundwater pump and treat system for OU 5 and FMMC DPW will submit the application to the state.

Cameron Station will continue to discharge sanitary wastewater to the City of Alexandria sanitary sewer system in compliance with City pretreatment standards until installation closure.

#### ***4.2.10 Oil/Water Separators***

The oil water separator located at Building 9 will continue to be maintained in compliance with the City of Alexandria sewer ordinance and pretreatment requirements. The separator will be cleaned as necessary to ensure compliance.

#### ***4.2.11 Pollution Prevention***

Cameron Station will continue to utilize the Cameron Station pollution prevention program at the installation until closure. This includes the recycling of used oils and solvents and solid waste. The possibility of recycling any materials during remedial activities will continue to be considered during the design phase.

#### ***4.2.12 NRC Licensing***

There are no NRC licenses for Cameron Station; therefore, there are no compliance requirements or strategies under this program for the installation.



#### ***4.2.13 Mixed Waste***

There is no mixed waste generated at Cameron Station; therefore, there are no compliance requirements or strategies under this program for the installation.

#### ***4.2.14 Radiation***

There are no radioactive wastes generated at Cameron Station; therefore, there are no compliance requirements or strategies under this program for the installation.

#### ***4.2.15 Lead-Based Paint***

The Cameron Station lead-based paint management program will continue to be conducted in accordance with U.S. Department of HUD guidelines for lead-based paint protection and the DA guidance "Lead-based Paint and Asbestos in U.S. Army Properties Affected by Base Realignment and Closure", dated June 1993. New property owners will be notified of the suspected presence of lead-based paint in all Cameron Station buildings except Building 20 which has been documented to be lead-based paint free.

#### ***4.2.16 Medical Waste***

There is no medical waste generated at Cameron Station; therefore, there are no compliance requirements or strategies under this program for the installation.

#### ***4.2.17 Unexploded Ordnance***

No UXO was identified at Cameron Station; therefore, there are no compliance requirements or strategies under this program for the installation.

#### ***4.2.18 National Environmental Policy Act (NEPA)***

Cameron Station has completed all federally- and state-mandated NEPA documentation for closure. Currently, Cameron Station does not have plans to produce additional NEPA documentation. Cameron Station will, however, continue to evaluate all applicable U.S. Army actions at the installation in compliance with NEPA requirements.

#### ***4.2.19 Air Emissions***

Cameron Station will submit an air emissions permit application and supporting data to VDEQ for review by March 1995. It is anticipated that Cameron Station will not need an air permit once the data is reviewed due to the small number/size of sources at the installation.

### **4.3 Natural and Cultural Resources Strategy(ies)**

This section discusses the strategies for natural and cultural resource programs at Cameron Station developed to manage these resources throughout the BRAC cleanup and installation closure process.

#### **4.3.1 Vegetation**

The Fort Myer DPW will continue to maintain the existing vegetation at Cameron Station until closure in compliance with the installation grounds maintenance plan.

#### **4.3.2 Wildlife**

The staff at Cameron Station will continue to observe the waterfowl population at Cameron Lake related to overcrowding. In addition, the installation will continue to enforce the "No Feeding" policy to prevent the domestication of migratory birds. Wildfowl traffic hazard signs will also be maintained around Cameron Lake.

#### **4.3.3 Wetlands and Floodplains**

Cameron Lake is classified as a wetland palustrine open water habitat. As a result, the lake is subject to permitting through Section 404 of the CWA if dredging or filling activities are conducted. Although no activities are anticipated in the wetland areas at Cameron Station, the U.S. Army will comply with all applicable wetlands regulations through disposal of the property.

#### **4.3.4 Designated Preservation Areas**

The U.S. Army will comply with Alexandria's Chesapeake Bay Preservation Area ordinance at Cameron Station through property disposal. This will include the consideration of RPA and RMA management and development impacts on installation operations and in disposal planning.

#### **4.3.5 Rare, Threatened and Endangered Species**

No threatened and endangered species rely on Cameron Station for critical habitat, nor does critical habitat exist at Cameron Station. Therefore, there are no specific rare, threatened and endangered species strategies required for the installation. "No feeding" and "wildlife hazard area" signs, which are being maintained around Cameron Lake as part of the wildlife management plan, will aid in the management of any migratory rare, threatened and endangered birds which might land at the installation.

#### **4.3.6 Cultural Resources**

Because Cameron Station does not contain cultural resources eligible for listing on the NRHP, there are no cultural resource strategies planned for the installation. However, if any cultural or historic resources are identified at the installation prior to closure, appropriate action will be taken to insure the resources are properly managed.



#### **4.3.7 Other Resources**

The installation will continue to maintain "no fishing" signs around Cameron Lake to discourage such activity and the resultant potential consumption of contaminated fish. The City of Alexandria has agreed to continue the "no fishing" policy after transfer.

#### **4.4 Community Involvement/Strategy**

The PIRP for Cameron Station, dated April 1993, has been implemented to facilitate communication among the U.S. Army, other federal, state, or local agencies, and interested groups and other community residents concerning restoration activities at Cameron Station. Additionally, a RAB has been established to facilitate community involvement. The implementation of the PIRP and RAB ensures that all parties involved or interested in the Cameron Station environmental restoration process are provided accurate, consistent information concerning related cleanup activities, contaminants, and possible effects of any contamination in a timely manner.

In addition to the PIRP and RAB, the Cameron Station BCT has adopted the following strategy to support a proactive community relations program in accordance with the CERCLA requirements:

- ▶ Maintain and update the information repository at the installation and public library.
- ▶ Continue to publish fact sheets on the progress of environmental restoration and disposal programs.
- ▶ Continue coordination with the Cameron Station Reuse Task Force and the City of Alexandria.
- ▶ Continue community outreach including site tours and open houses to maintain community involvement in the Cameron Station environmental restoration and disposal process.
- ▶ Maintain and update the mailing list so that information can be effectively distributed to interested parties.
- ▶ Continue to consider community reuse goals in the restoration process through RA and RD.
- ▶ Schedule public hearings on the amendment to the DD or other matters as required to allow public comments on environmental cleanup programs planned for Cameron Station.

# CHAPTER 5

---

## ► ENVIRONMENTAL PROGRAM MASTER SCHEDULES ◀

This chapter presents Cameron Station Master Schedules of anticipated activities in the installation's environmental programs. These schedules are simplified from detailed network and operational schedules developed to support OU-specific work plans and compliance agreements established in the installation-wide DD and CAP for OU 8. Environmental restoration activities are graphically summarized in Figure 5-1. Compliance activities are summarized in Figure 5-2 and Figure 5-3. Natural and cultural resource activities are summarized in Figure 5-4. Each of these schedules displays the critical path analysis for the respective installation program. Components in each analysis include critical and noncritical path, baseline, completed duration, milestones, float, delay and conflict. These components are defined in Section 4.1.3.

### 5.1 Environmental Restoration Program

This section presents response schedules and outlines fiscal year requirements for Cameron Station's environmental restoration program.

#### 5.1.1 *Response Schedules*

The installation's ability to meet the milestones shown on the schedule in Figure 5-1 hinges on a number of factors including (1) completion of IRP activities without discovery of additional contamination sources for any OU; (2) amendment of the DD to reflect an NFA decision for OU 3, the former landfill; (3) resolution of issues related to real estate transfer of property with long term RAs including access, liability, impact on redevelopment and conflicts with construction; and (4) timely contract awards for RAs.

#### 5.1.2 *Requirements by Fiscal Year*

The detailed requirements information by fiscal year is contained in the Cameron Station Work Plan and is incorporated into this document by reference. The tables in Appendix A to this document are taken directly from the Work Plan and provide summary information on funding requirements.

### 5.2 Compliance Programs

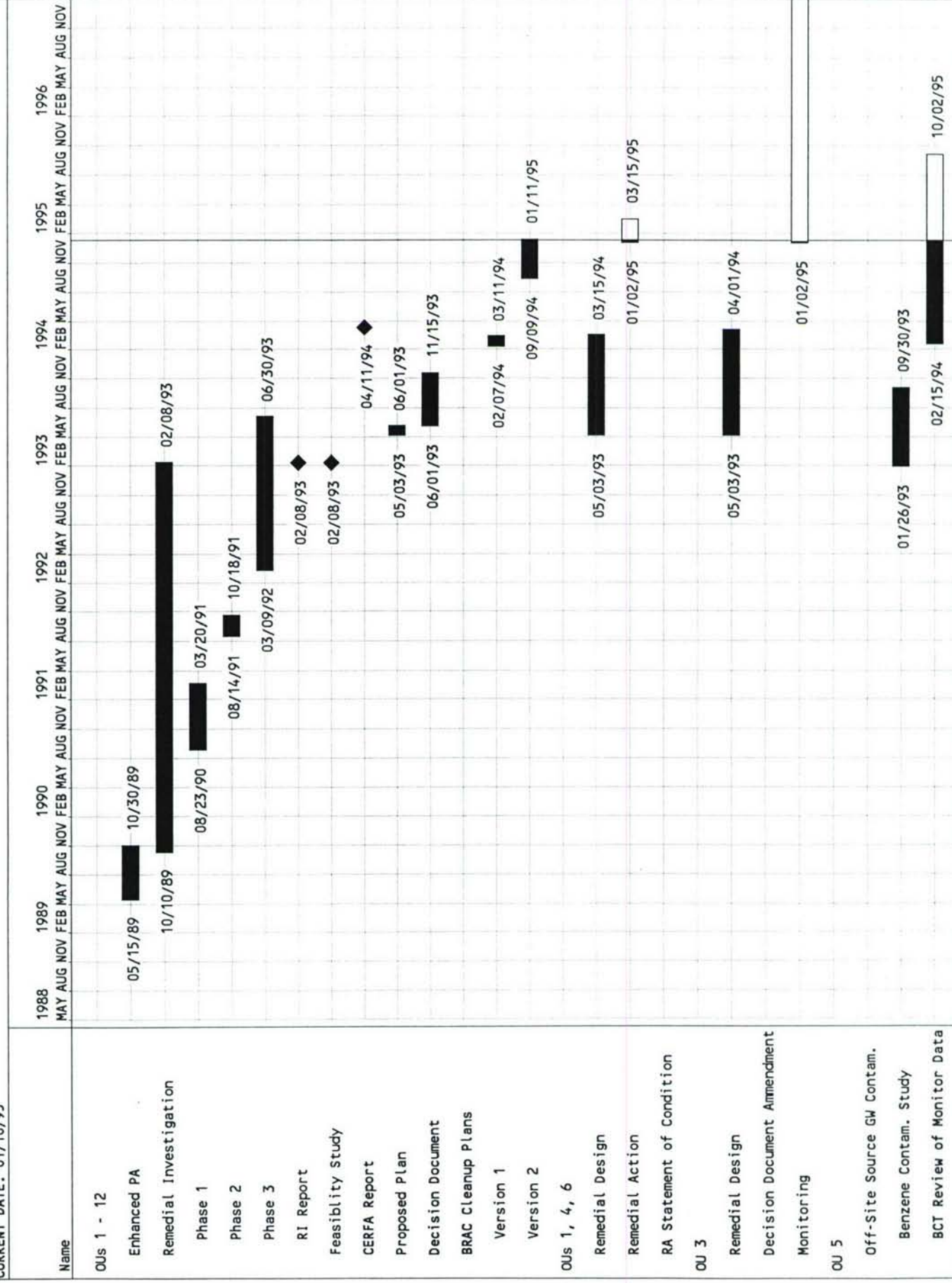
This section presents master compliance schedules and outlines fiscal year requirements for Cameron Station's compliance programs. Mission-related and closure-related programs are scheduled separately.



**This page intentionally left blank.**

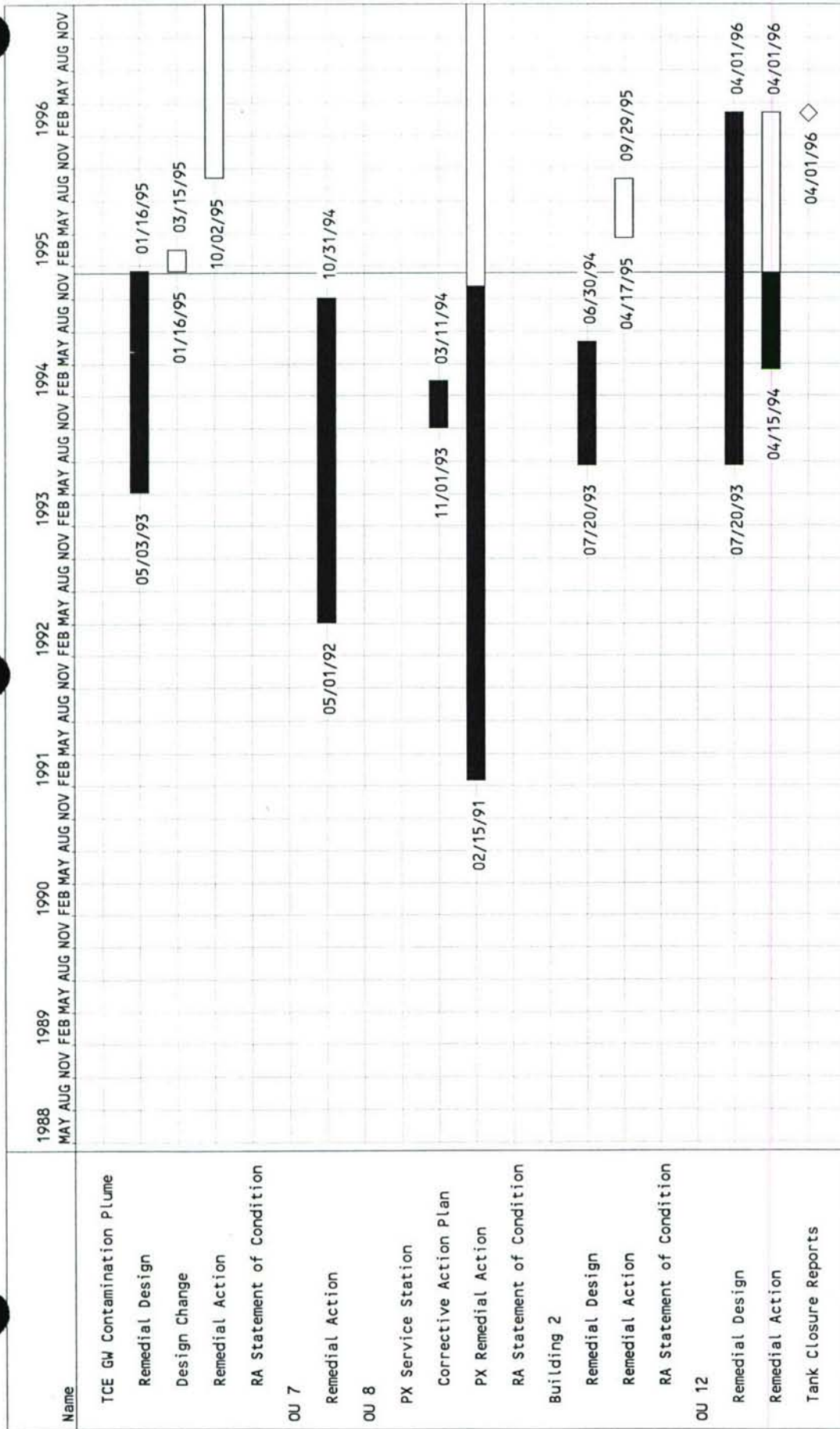
PROJECT: Cameron Station  
 MANAGER: Kelly Koontz  
 CURRENT DATE: 01/10/95

Figure 5-1 Env. Restoration





**This page intentionally left blank.**





**This page intentionally left blank.**

### ***5.2.1 Master Compliance Schedules***

The compliance schedule for mission/operation-related compliance programs for Cameron Station is provided in Figure 5-2. The compliance schedule for closure-related compliance programs is provided as Figure 5-3. Compliance activities to be completed include quarterly removal of hazardous waste, ongoing worker training and lab analysis, oil/water separator testing, air quality permit application, and remediation of OU 8 (PX Service Station) in compliance with a VDEQ CAP.

### ***5.2.2 Requirements by Fiscal Year***

The detailed requirements information by fiscal year is contained in the Cameron Station Work Plan and is incorporated into this document by reference. The tables in Appendix A to this document are taken directly from the Work Plan and provide summary information on funding requirements.

## **5.3 Natural and Cultural Resources**

This section presents master natural and cultural resources activity schedules and outlines fiscal year requirements for Cameron Station's natural and cultural resource programs.

### ***5.3.1 Natural and Cultural Resources Schedule(s)***

The natural and cultural resources schedule for past projects at Cameron Station is provided in Figure 5-4. There are currently no significant natural and cultural resources projects planned at Cameron Station. Activities are limited to grounds maintenance and continued wildlife management tasks.

### ***5.3.2 Requirements by Fiscal Year***

The detailed requirements information by fiscal year is contained in the Cameron Station Work Plan and is incorporated into this document by reference. The tables in Appendix A to this document are taken directly from the Work Plan and provide summary information on funding requirements.

## **5.4 Meeting Schedule**

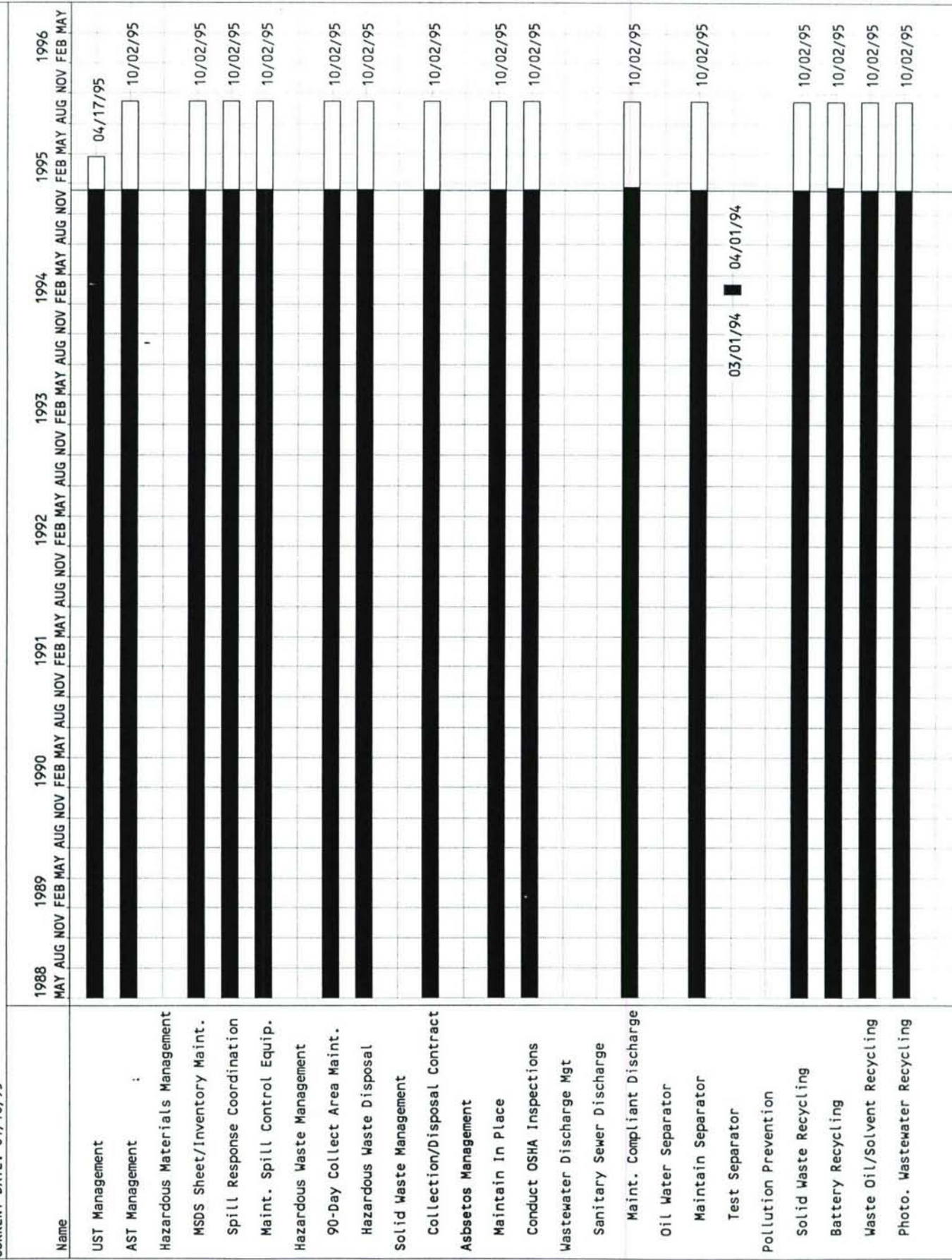
Meetings are scheduled to promote an expedited restoration schedule for Cameron Station. Meetings are typically held as follows:

- ▶ Remedial Project Manager Meetings - Monthly
- ▶ Document Presentation Meetings - Within 10 days of document submittal
- ▶ Technical/Issue Resolution Meetings - As necessary to facilitate contained movement of the restoration or compliance activities
- ▶ UST Program Meetings - Monthly
- ▶ BRAC In-Progress Review Meetings - Monthly



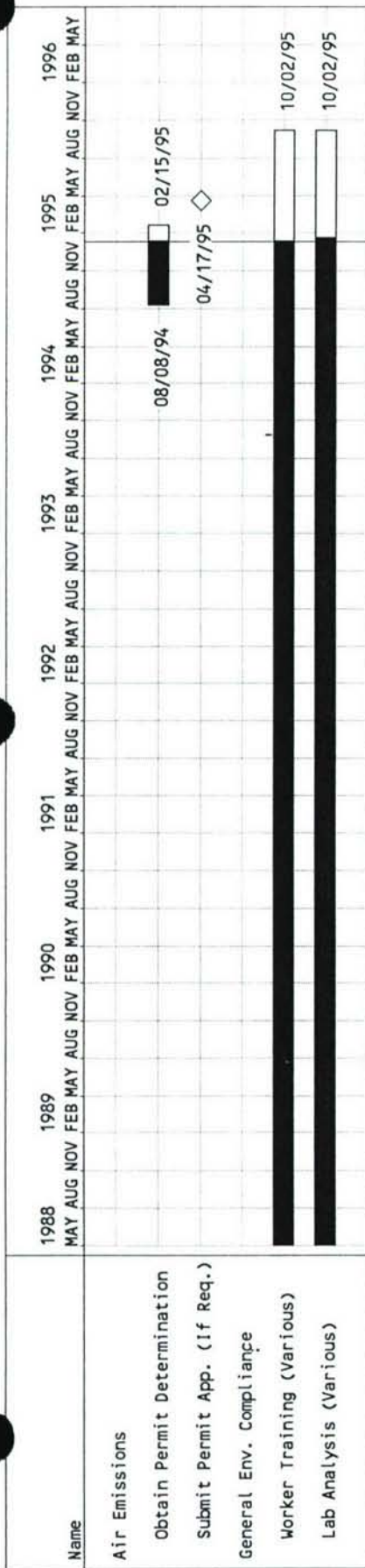
**This page intentionally left blank.**

Figure 5-2 Miss/Ops Compliance





**This page intentionally left blank.**

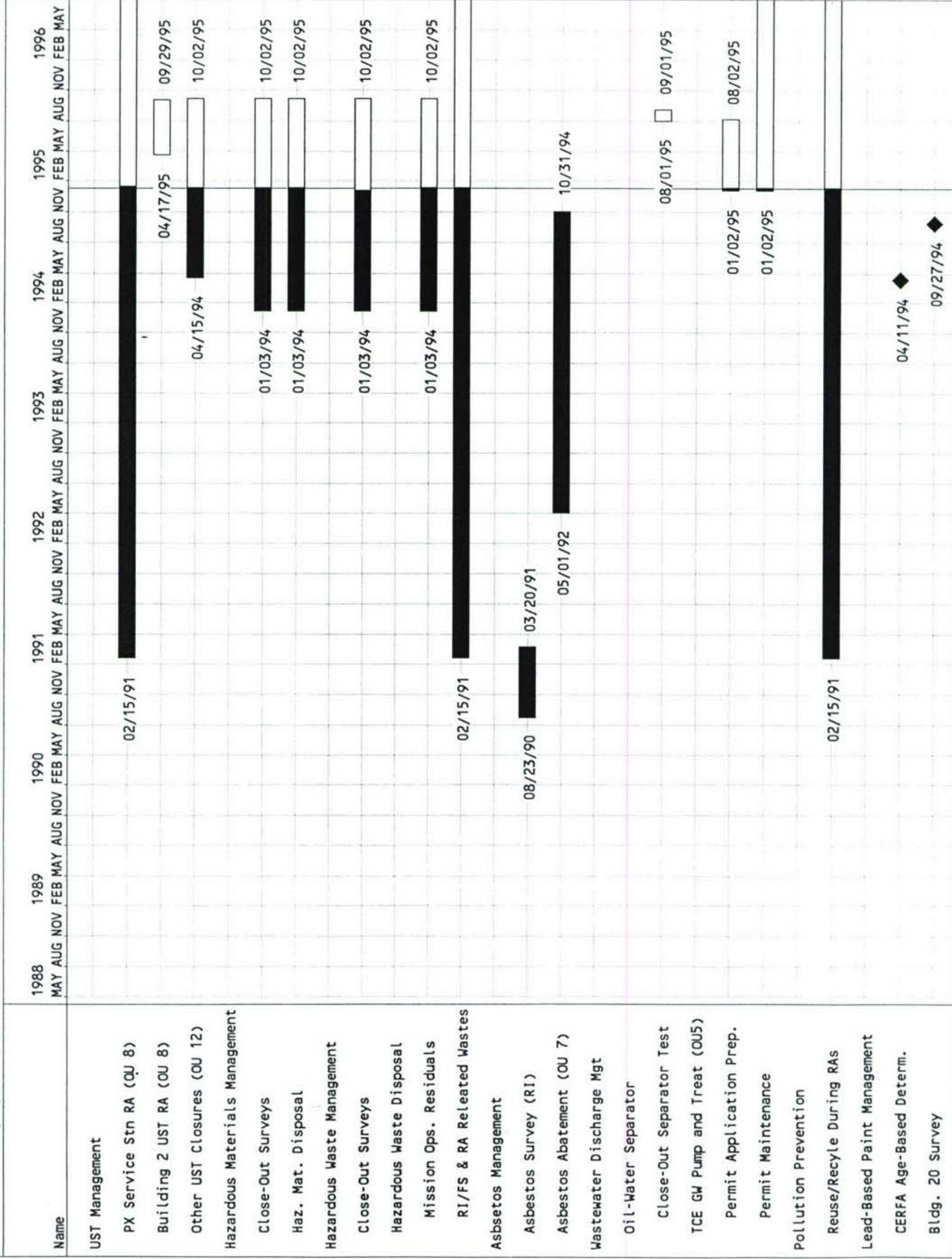




**This page intentionally left blank.**

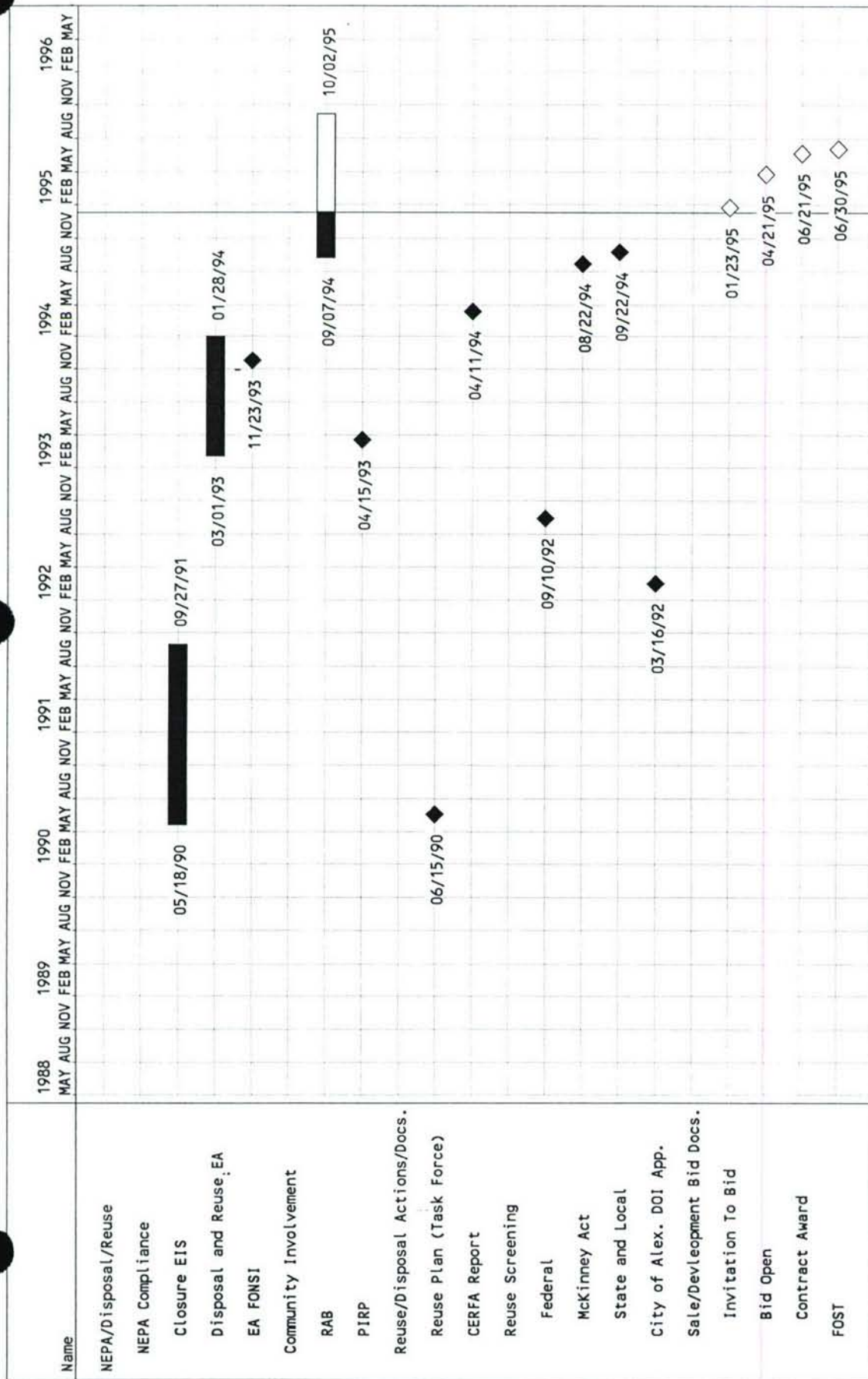
PROJECT: Cameron Station  
 MANAGER: Kelly Koontz  
 CURRENT DATE: 01/10/95

Figure 5-3 Closure Compliance





**This page intentionally left blank.**

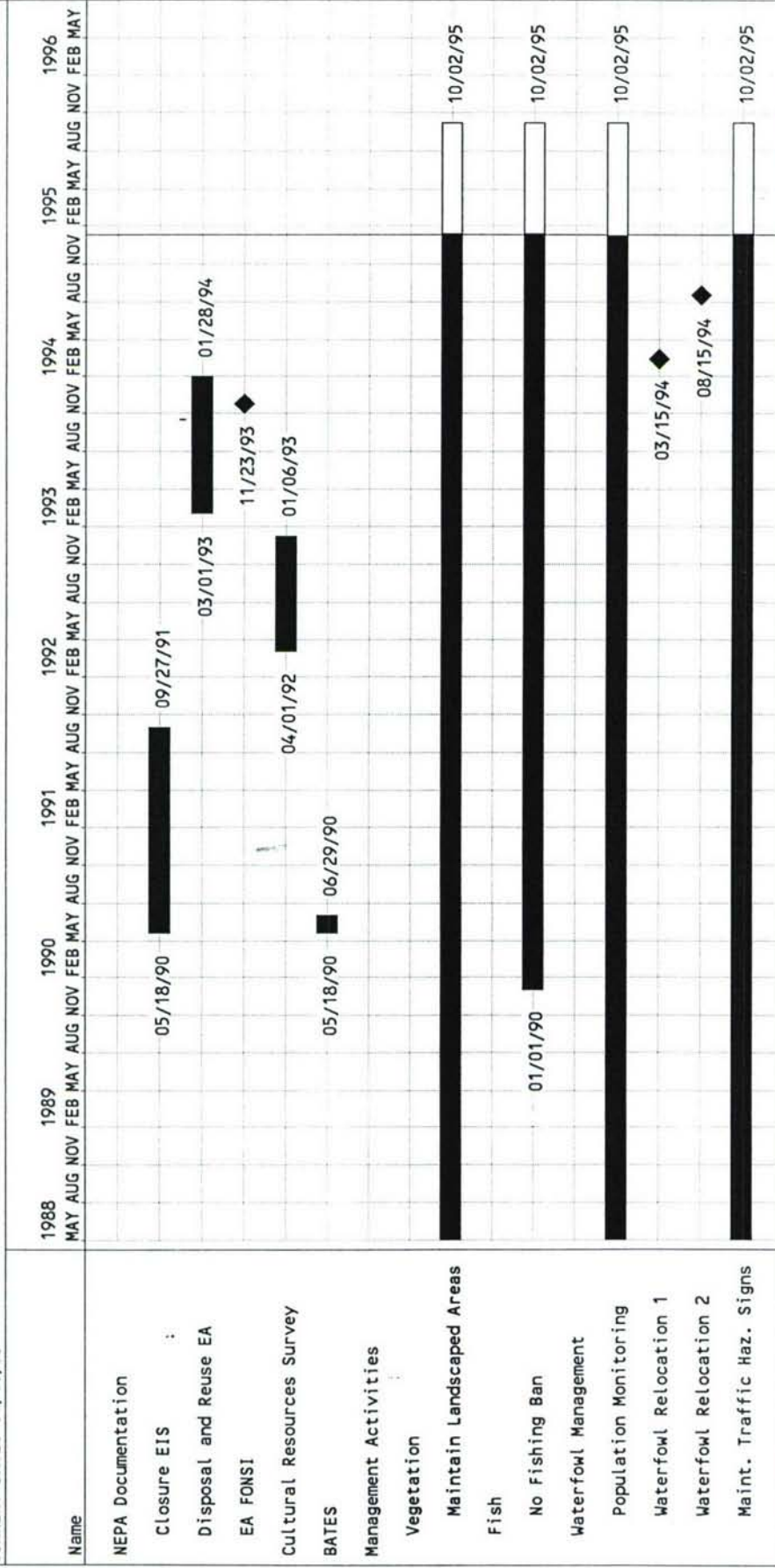




**This page intentionally left blank.**

PROJECT: Cameron Station  
 MANAGER: Kelly Koontz  
 CURRENT DATE: 01/10/95

Figure 5-4 Nat/Cult Resources





**This page intentionally left blank.**

- ▶ RAB Meetings - Monthly
- ▶ RAB - monthly for 4 months then quarterly.

A listing of the currently scheduled BCT meetings is provided in Table 5-1.

**TABLE 5-1. BCT MEETING SCHEDULE**

Date	Topic
November 1-3, 1993	BCT Training
November 18, 1993	Bottom-Up Review
December 9, 1993	Bottom-Up Review
December 13, 1993	Bottom-Up Review
December 21, 1993	Bottom-Up Review
December 29, 1993	Bottom-Up Review
January 4, 1994	Bottom-Up Review
January 27-28, 1994	USAEC Meeting
February 7, 1994	Phase I Coordination Meeting
February 16, 1994	Review Draft BCP
March 30, 1994	BCT Meeting
April 26, 1994	BCT Meeting
April 26, 1994	RAB Meeting
June 20, 1994	RAB Meeting
August 4, 1994	BCT Meeting
September 7, 1994	RAB Meeting
October 5, 1994	RAB Installation Tour
October 12, 1994	RAB Meeting
November 2, 1994	BCT Meeting
November 9, 1994	RAB Meeting
December 14, 1994	RAB Meeting
January 11, 1995	RAB Meeting
February 8, 1995	RAB Meeting
April 1995	RAB Meeting
June 1995	RAB Meeting
August 1995	RAB Meeting



**This page intentionally left blank.**

# CHAPTER 6

---

## ► TECHNICAL AND OTHER ISSUES TO BE RESOLVED ◄

This chapter summarizes technical and other issues that are yet to be resolved. These issues include information management; usability of historical data; data gaps; natural (background) levels of elements and compounds in soil, groundwater, surface water, and sediments; risk assessment; state cleanup standards; and program initiatives to complete cleanup requirements as required to meet property transfer schedules.

### 6.1 Information Management

This section identifies issues that need to be resolved with regard to managing information gathered and used in the installation environmental restoration and compliance programs. Issues include:

- Improved coordination of, access to, and management of environmental restoration and real estate-type data generated at Cameron Station
- Implementation of contractor requirement to submit data in electronic format that can be readily used by the U.S. Army
- Development of provisions for real time data inputs of field decisions to expedite RA progression.

#### 6.1.1 BCT Action Items

The information management issues identified above have generally been addressed. Currently, one action item has been identified. In order to manage the restoration process at Cameron Station, the impacts on Cameron Station from the offsite benzene plume should be monitored. Data generated during offsite groundwater investigations currently being conducted under the guidance of the VDEQ should continue to be provided to the BCT and to the appropriate USACE representatives after closure.

#### 6.1.2 Rationale

As the number of agencies and contractors associated with the Cameron Station disposal and environmental restoration program increases, it is important that all parties involved are able to share data for decision making. The establishment and maintenance of an electronic database of on-site and off-site investigation sampling and analysis data and spatial data (e.g., real estate and environmental condition of property maps) is the most efficient method of sharing data among parties. The availability of reports and maps in an electronic format which can be assessed and



shared by multiple users is also important in managing and expediting the environmental restoration process.

### *6.1.3 Status/Strategy*

A summary of the current status of information management relative to BRAC cleanup activities at Cameron Station and strategies which have been developed to address information management requirements is provided below:

- ▶ All data generated by the USAEC during the RI/FS have been loaded into the Installation Restoration Data Management Information (IRDMIS). IRDMIS is the electronic data management system used by the USAEC for investigations it conducts at BRAC installations. The database is available for use by the USACE and RA contractors to track RA effectiveness and long-term monitoring.
- ▶ All historical data generated at Cameron Station are available at the BEC office at Cameron Station.
- ▶ The BCT and USACE will coordinate with VDEQ to continue receiving data regarding the ongoing offsite benzene plume investigations in order to evaluate any impacts on installation RAs.
- ▶ Data and reports generated in the future will be loaded into DENIX on a quarterly basis, subject to inclusion of this requirement being added to or included into contracts. The Version II BCP will be made available on DENIX.
- ▶ A suitable property for transfer map has been generated using a computer geographic information system (GIS). Electronic map and database electronic files are available at the installation and at the USAEC.
- ▶ Necessary contract modifications will be made by the U.S. Army to ensure that data from ongoing and future efforts including RD, RA, and long-term monitoring are submitted electronically in a U.S. Army compatible format and are into DENIX.
- ▶ An information repository has also been established at the Alexandria Public Library, Ellen Coolidge Burke Branch to provide community access to information.
- ▶ Various public outreach programs have been established to provide for the dissemination of information to the community. These include the formation of the RAB, conducting open houses and installation tours, and mailing fact sheets. These activities are coordinated through the MDW Public Affairs Office.

## 6.2 Data Usability

This section summarizes unresolved issues pertaining to the validity of using historical data sets in the installation environmental restoration program.

### 6.2.1 BCT Action Items

The BCT at Cameron Station should continue to ensure the acceptability of data generated in order to provide for the implementation of effective RD and RAs during the BRAC environmental restoration process at Cameron Station.

### 6.2.2 Rationale

Historical analytical data contribute to the completion of site characterizations and risk assessments by filling data gaps. The qualification of current and future data from each data collection system (e.g., field laboratories, field screening techniques) are critical to the completion of all site characterization efforts, comprehensive conceptual model development, risk assessments, selection of appropriate RAs, development of effective RDs and implementation of RAs.

### 6.2.3 Status/Strategy

A summary of the current status and strategy for ensuring data usability at Cameron Station is provided below:

- ▶ Existing historical documents related to the identification of AREEs have been reviewed and validated through subsequent historical record investigations such as the CERFA investigation, through the generation of field data during the RI, and the BCT bottom up review. The BCT will continue to evaluate historical data as it becomes available to insure its accuracy.
- ▶ Field and laboratory audits were conducted during the RI to ensure data quality and usability.
- ▶ Laboratory and field data are collected and managed in accordance with Quality Assurance Project Plans (QAPPs) which have been approved by the regulatory agencies to ensure the validity of the data that are collected. Detection limits are very dynamic. Future field sampling and laboratory analysis which may be required for RAs or long-term monitoring will consider advances in analytical chemistry. The state-approved QAPP will be continuously reviewed to ensure that data quality objectives are being met.
- ▶ Data will be generated and disseminated in a manner that will provide usability and data sharing for those involved in the environmental restoration program at Cameron Station. The status and strategy for information management at the installation is highlighted in Section 6.1.3.



## **6.3 Data Gaps**

This section summarizes unresolved issues pertaining to the determination and collection of data needed to complete the Cameron Station environmental restoration program.

### **6.3.1 BCT Action Items**

The most significant data gap related to Cameron Station is the characterization and monitoring of the benzene and 1,2-DCA plume which exists at Cameron Station but appears to have been generated off-site.

### **6.3.2 Rationale**

It is necessary to discover the source and understand the magnitude of the off-site benzene contamination in order to evaluate the impacts to Cameron Station. It is crucial to determine what type of RA will take place off-site and how or if this RA will impact development at Cameron Station.

### **6.3.3 Status/Strategy**

Currently the Water Division of VDEQ is requesting a complete Site Characterization Report from potentially responsible off-site parties. Once this information becomes available, and the state determines the course of action, the BCT will be able to assess the impacts on Cameron Station. The BCT is also coordinating with the VDEQ to monitor the plume and identify any future impacts to the installation.

## **6.4 Background Levels**

This section summarizes unresolved issues, BCT action items, status and strategies related to background levels at Cameron Station.

### **6.4.1 BCT Action Items**

Background levels were established during the RI. There are no outstanding BCT action items that apply to this issue at Cameron Station.

### **6.4.2 Rationale**

The establishment of background levels against which to evaluate and compare field sampling results are a critical element in the RI process. They are also important in establishing cleanup goals as it is generally unreasonable to cleanup below ambient conditions for this area.

### **6.4.3 Status/Strategy**

Cameron Station is well along in the environmental restoration process. A RI/FS for the installation has been completed, a PP has been prepared and remedies have been selected and documented in a DD. Background or ambient conditions were established during the RI to serve

as a baseline to which onsite chemicals were compared and evaluated. Stream sediment, surface water, groundwater and soil samples were collected and analyzed during the RI to determine ambient conditions for the site.

Cameron Station is located in a highly developed, urban area where the environment has been modified for hundreds of years. Cut and fill activities to develop and control flooding, have been performed over much of the site. "Background" conditions, therefore, were not found to be characteristic of a pristine natural area unaffected by development. The Cameron Station RI activities did not include substantive off-site sampling to determine background conditions relative to environmental contamination. Ambient conditions were evaluated against a number of standards to determine their conformity or nonconformity with other similar urban sites. The data were used to evaluate the impacts of site activities and to develop the risk assessment and FS and were considered in the remedy selection process. No further strategy regarding background levels is necessary at Cameron Station.

## **6.5 Risk Assessments**

This section summarizes unresolved issues pertaining to the completion of risk assessments required to support the Cameron Station environmental restoration and compliance programs.

### **6.5.1 BCT Action Items**

A baseline risk assessment was completed as part of the RI. The risk assessment evaluated risk to current and future populations if no RAs are taken at the installation. Potential exposure populations were identified based on current land use and proposed land uses which are consistent with the Cameron Station Reuse Plan. The BCT will continue to evaluate the role of anticipated land use as a criterion in selecting assumptions in exposure assessments. The exposure assessments will be used in establishing cleanup levels during the remediation process. In the event that the proposed land use of the installation is dramatically altered, the BCT will review exposure scenarios considered during the RI risk assessment to ensure that they accurately evaluate risk for potential exposed populations.

### **6.5.2 Rationale**

The RI risk assessment provides a baseline from which to evaluate the need for RA based on risk to current and future populations present at the installation. The exposure scenarios developed for the RI were based on reasonably anticipated use of the installation which is consistent with the current reuse plan for the installation. In the event that the proposed land use for the site is altered, the exposure scenarios and resultant risk assessment may no longer be accurate. In the unlikely event that this is the case, the risk assessment may require modification.

### **6.5.3 Status/Strategy**

Risk assessment protocols have been established for Cameron Station and were followed during the RI conducted for the installation. The protocols presented in the RI Report, dated February



1993, have been and are being used to form the basis of exposure scenarios used in the calculation of risk values for the installation.

Table 6-1 presents a summary of future land use risk assessment for the development of remedy selections. According to the risk assessment, which was included in the RI report dated February 1993, there were no exposure pathways which resulted in an unacceptable human health risk (i.e., greater than  $1 \times 10^{-4}$ ) to any population. Based on the risk and ecological assessment, remediation of any chemicals detected at the site in the RI would not be required. RAs being completed at Cameron Station are therefore not risk-based. If the proposed land use for the installation is significantly modified, exposure scenarios and risk assessments may change. The BCT will work closely with the Task Force to Monitor the Closure of Cameron Station to identify any such land use changes, and incorporate such changes in the installation environmental restoration strategy.

## **6.6 Installation-wide RA Strategy**

An installation-wide RA strategy has been developed which addresses the ongoing environmental restorations at Cameron Station. This section summarizes unresolved issues relative to this strategy.

### **6.6.1 BCT Action Items**

The installation-wide RA strategy for cleanup of the OUs at Cameron Station has been established and is presented in Chapter 4 of this BCP. Specific remedies for each OU at the installation are identified in the installation-wide DD. The BCT plans to update the BCP semi-annually including revisions to the remediation schedule. An installation-wide budget addressing current and projected funding needs has been developed and will be modified as necessary to reflect changes in the Cameron Station IRP.

### **6.6.2 Rationale**

An installation-wide RA strategy can achieve coordinated, expedited, and effective RAs while controlling costs. RAs which are the same for multiple sites can be completed in one operation, under one contract, potentially reducing the time to complete the RAs and reducing administrative costs. The interaction of multiple RAs should be considered during design and implementation so that the most effective RAs are executed. RAs should also easily be prioritized based on risk, reuse schedules, and available funds.

### **6.6.3 Status/Strategy**

An installation-wide approach has been taken for Cameron Station throughout the environmental restoration process. Installation-wide Enhanced PAs and CERFA investigations were completed. The RI and FS also encompassed the entire installation. The RI baseline human health risk assessment and ecological assessment evaluated not only individual site risk but also installation total impacts from site contaminants. By utilizing the installation-wide approach, the FS was able to consider the effectiveness and cost savings for various installation-wide scenarios. The

**TABLE 6-1. FUTURE LAND USE RISK ASSESSMENT FOR DEVELOPMENT OF REMEDY SELECTIONS**

Site ID	Risks	Contaminants			Current Use	Adjacent Uses	Anticipated Uses
		Groundwater	Soil	Surface/ Sediment			
OU 1	Not a risk to human health	Inorganics	PCBs	PCBs (asphalt)	Non-PCB transformer storage	Southern Railway, Backlick Run	Commercial, residential, recreational
OU 2	Not a risk to human health	Metals	-	-	Cameron Lake	Recreational	Residential, recreational
OU 3	Not a risk to human health	Metals	-	-	Closed landfill	Southern Railway and recreational	Recreational
OU 4	Not a risk to human health	Chlordane and Heptachlor	Dioxins	-	Pesticide storage	Southern Railway, Backlick Run	Commercial, residential, recreational
OU 5	Not a risk to human health	Chlorinated hydrocarbons, benzene, 1,2-DCA, metals	-	TCE (storm sewer water and sludges)	Sanitary and storm sewer systems	Cameron Station buildings	Commercial, residential, recreational
OU 6	Not a risk to human health	-	TPH, lead	-	Closed acid pits	Cameron Station buildings	Residential, recreational
OU 7	Not a risk to human health	-	-	-	Asbestos in buildings	Cameron Station buildings	Commercial, residential, recreational
OU 8	Not a risk to human health	Benzene, toluene, ethylbenzene, xylene (BTEX)	Petroleum product	-	PX Service Station closed; leaking USTs removed	Cameron Station buildings, Cameron Lake	Residential
OU 9	Not a risk to human health	-	-	-	Dirt roads south and west of Building 9	Recreational, industrial, Southern Railway	Commercial, recreational
OU 10	Not a risk to human health	-	-	Low levels of metals (surface water)	Backlick, Holmes and Cameron Runs	Recreational, residential, Southern Railway	Residential, recreational
OU 11	Not a risk to human health	-	-	-	Building 21 (boiler plant)	Backlick Run, Cameron Station buildings	Recreational
OU 12	Not a risk to human health	-	-	-	Active USTs (installation-wide)	Cameron Station buildings	Commercial, residential, recreational



installation-wide approach was followed through for both the PP and the DD. Individual DDs were not prepared for each OU.

The BCT will continue to implement an installation-wide strategy approach for environmental restoration at Cameron Station. This strategy will be outlined in the BCP which will be updated on a regular basis. Whenever possible, RDs and RAs will be considered for multiple sites in order to capitalize on the associated time and cost savings that can be realized from such a strategy.

## **6.7 Interim Monitoring of Groundwater and Surface Water**

Several groundwater and surface water interim monitoring activities are ongoing or will be required at Cameron Station for environmental restoration and compliance programs. These include the following:

- ▶ Groundwater monitoring in association with the pump and treat system for OU 8 (PX Service Station);
- ▶ Groundwater and surface water discharge monitoring in association with the pump and treat system for OU 5 (TCE groundwater plume);
- ▶ Groundwater monitoring in association with the off-site benzene plume (OU 5);
- ▶ Groundwater monitoring in association with the landfill (OU 3); and
- ▶ Monitoring in association with sanitary sewer discharge to the City of Alexandria Sewer System.

Action items, rationale, and strategies for each of these is described in the sections below.

### **6.7.1 BCT Action Items**

Action items related to interim monitoring of groundwater and surface water are identified as follows:

- ▶ Groundwater monitoring in the vicinity of OU 8 must continue to take place in accordance with the Corrective Action Plan under the regulatory jurisdiction of the VDEQ's UST Program.
- ▶ Groundwater monitoring related to the OU 5 TCE plume must be conducted by the U.S. Army as required to evaluate the effectiveness and operation of the groundwater pump and treat system to be installed as specified in the DD. The data generated from the operation of the system will confirm previous assumptions regarding the extent of the TCE contamination.

- ▶ Groundwater monitoring in association with the landfill (OU 3) will be conducted and results will be reviewed by the BCT.
- ▶ A VPDES permit for the treated groundwater discharge from the OU 5 TCE plume pump and treat system must be obtained. The application is in progress at the Fort Myer DPW.
- ▶ Cameron Station must coordinate with the VDEQ to obtain site characterization report groundwater sample data and additional groundwater monitoring data related to the off-site benzene plume (OU 5).

### **6.7.2 Rationale**

Cameron Station will be required to monitor groundwater in association with OU 8 and the OU 5 TCE plume in order to evaluate treatment system operation and to comply with the CAP for OU 8 and the DD. A VPDES permit will be required when RAs involving a surface water discharge begin.

It is necessary to discover the source and understand the magnitude of the off-site benzene plume contamination in order to evaluate the impacts to Cameron Station. It is crucial to determine what type of RA will take place off-site and how this RA will impact development at Cameron Station. Coordination with VDEQ to obtain groundwater monitoring results will aid in this process.

Finally, it is necessary to periodically monitor the installation sanitary wastewater discharge to ensure compliance with the City sewer ordinance.

### **6.7.3 Status/Strategy**

Early actions have been undertaken at the installation as outlined in Section 4.1.4. These early actions include pumping/treating of the free product plume at OU 8 (PX Service Station). The activities at the PX Service Station, including groundwater monitoring activities and schedules, are outlined in the Corrective Action Plan.

Groundwater monitoring associated with OU 8 will continue as specified in the CAP. Groundwater monitoring for OU 5 TCE plume pump and treat will be conducted by the USACE under the review of the VDEQ. Access requirements relative to long-term monitoring of these two sites will be addressed in real estate transfer documents.

Remedial activities requiring discharge of wastewaters to surface waters will be closely monitored during the remediation period. Sampling and analysis parameters and monitoring frequency for surface water discharges will be established through a VPDES permit to be obtained prior to commencement of remedial activities involving such a discharge. The USACE has begun the preparation of the permit application and the FMMC DPW will submit the application to the state.



Coordination with VDEQ relative to the monitoring of the off-site benzene plume will continue. The BCT will evaluate impacts to the installation from this plume as additional information becomes available.

The Fort Myer DPW has completed sampling of the oil/water separator discharge to the sanitary sewer system. The discharge met the City of Alexandria pretreatment criteria. The DPW will continue to conduct monitoring as necessary to ensure that the sanitary sewer discharge meets City sanitary sewer limits until installation closure.

## **6.8 Excavation of Contaminated Materials**

Excavation of contaminated materials at Cameron Station will occur at three OUs as outlined in the DD. Action items, rationale, status and strategies related to these excavation RAs are described in the subsections below.

### **6.8.1 BCT Action Items**

The BCT will monitor the excavation of contaminated soils at OU 1 (PCB Transformer Service, Storage and Spill Areas), OU 4 (Pesticide Use and Storage Areas), and OU 6 (Acid Pits) to confirm that the actions are properly executed and that the contaminated materials are properly disposed, as specified in the DD. The BCT will evaluate the effectiveness of this treatment technology for any new sites should they be identified.

### **6.8.2 Rationale**

The excavation and off-site treatment/disposal of contaminated materials was identified as a cost effective method of remediating OUs 1, 4, and 6 in the FS and was documented as the selected remedy in the DD. The excavation and thermal desorption of POL-contaminated soil was also completed at the PX Service Station (OU 8) as an early action. There are no other OUs that have been identified as requiring excavation of contaminated materials at Cameron Station.

### **6.8.3 Status/Strategy**

The excavation of contaminated material and off-site disposal was the selected remedy for OUs 1, 4, and 6 documented in the DD. The DD for these OUs was completed in November 1993 and RA was initiated in October 1994. Contaminated materials have also been excavated and treated in an on-site treatment unit in association with OU 8, the PX Service Station, in compliance with a VDEQ CAP. If additional areas are found to contain contaminated materials, excavation and disposal/treatment RA alternatives will be evaluated.

## **6.9 Protocols for Remedial Design Reviews**

Protocols for RD reviews associated with the OUs that require RA at Cameron Station have been developed. This section summarizes unresolved issues and action items related to these protocols.

### **6.9.1 BCT Action Items**

The BCT will provide installation environmental documents including RD information to the RAB and other interested parties.

### **6.9.2 Rationale**

Review of RDs is critical to ensure they will achieve cleanup goals and that they are technically and administratively feasible. In addition, the solicitation of public comments on RDs through the RAB process can aid in the identification of community concerns which are outside technical and administrative criteria so that they can be addressed before they impact the implementation of RA.

### **6.9.3 Status/Strategy**

Draft RDs are reviewed by staff at the installation, USACE and the BCT. The design may be revised on the technical comments from the reviewer(s). In addition, copies of the final RD documents will be provided to members of the BCT, the RAB, and other interested parties for review in a manner consistent with the protocols specified under CERCLA Section 120, and in accordance with all ARARs specified in Chapter 4 and Section 6.11 of this document.

## **6.10 Conceptual Models**

Exposure profiles were developed as part of the baseline human health risk assessment completed for the Cameron Station RI. These scenarios were used to generate conceptual site models for each OU at Cameron Station that requires RA. A summary of the conceptual site model exposure profiles, contaminant transport diagrams, and graphical presentations of the conceptual site model for each OU are provided in Appendix E. Action items, and strategies related to these models are described in the subsections below.

### **6.10.1 BCT Action Items**

Conceptual site models will be reviewed and update by the BCT on a regular basis to reflect any new information regarding site contaminants, changes resulting from RAs and modifications in future land use planning.

### **6.10.2 Rationale**

The Cameron Station conceptual site models identify potential contaminant sources, exposure media, exposure routes and receptor populations. The models provided a framework for understanding RI sample analysis data and for the development of the baseline risk assessment.

### **6.10.3 Status/Strategy**

Conceptual site models have been developed as part of the BCP using exposure profiles generated during the RI. The models will be reviewed and updated by the BCT based on land



use planning modifications, RAs, or the unlikely discovery of new contaminants at the installation. The updated models will continue to be a tool for evaluating and depicting exposure pathways at Cameron Station.

## **6.11 Cleanup Standards**

Cleanup standards are used to identify remedial alternatives capable of achieving cleanup goals, and the time at which remediation is complete. Action items, rationale, and the status/strategy related to the establishment of Cleanup Standards for Cameron Station are described in the subsections below.

### **6.11.1 BCT Action Items**

Cameron Station developed a list of cleanup standards based on ARARs during the FS. The methodology for developing these standards is included in the Feasibility Study Report, dated 1993. A summary listing of the standards is presented in Appendix F.

### **6.11.2 Rationale**

Section 121(d) (Degree of Cleanup) of CERCLA, as amended by SARA, states that any RA selected for a site must, at a minimum, attain a degree of cleanup that ensures protection of human health and the environment. In addition, the RA must meet ARARs.

There are three types of ARARs. The first are chemical-specific ARARs, which establish health- or risk-based concentration limits for the various environmental media. The chemical-specific ARARs may set a level of cleanup or discharge. The second are location-specific ARARs. These ARARs set limitations on remedial activities as a result of the site characteristics. The third are action-specific ARARs, which establish controls on the type of remedial activities that can be part of the remedial solution. These can include restrictions for activities performed in wetlands, flood plains, and historical sites.

In the absence of federal- or state-mandated cleanup standards for hazardous wastes or constituents in soils, the approach for providing remediation criteria for contaminated soils is either through the completion of a risk assessment specific to a site or the use of more generic guidance levels. The Interim Final RCRA Facility Investigation (RFI) Guidance, Volume I of IV, Development of an RFI Work Plan and General Considerations for RCRA Facility Investigation (USEPA 30/SW-89-031, Waste Management Division, Office of Solid Waste, May 1989) provides health-based guidance criteria concentrations for a number of hazardous compounds and elements based on oral and inhalation exposure routes. Additional health-based concentrations can be found in USEPA Region III Risk-Based Concentration Tables, dated 15 October 1993. The criteria are subject to change and will be confirmed by the appropriate regulatory agency prior to use.

### 6.11.3 Status/Strategy

The cleanup standards for Cameron Station were selected during the FS after review and evaluation of ARARs, risk estimates, and potential future land use information. Cleanup goals for soils and wastes at Cameron Station were determined by comparing health-related criteria with regulatory standards derived from the ARARs. In general, the most stringent criterion was selected as the cleanup goal. Health-related criteria were calculated for chemicals (PCBs, dieldrin, and dioxin) which contributed an excess cancer risk of greater than  $1 \times 10^{-6}$  in the baseline risk assessment. Regulatory standards, derived from ARARs, were used to establish cleanup standards for lead and total petroleum hydrocarbons.

Four potential sources for groundwater cleanup goals were identified for Cameron Station:

- ▶ Virginia Groundwater Standards and Criteria
- ▶ RCRA Maximum Contaminant Levels (MCLs)
- ▶ Virginia Primary and Secondary MCLs
- ▶ USEPA SDWA MCLs and Maximum Contaminant Level Goals (MCLGs).

Risks associated with ingestion of groundwater were not calculated in the Baseline Risk Assessment Report due to an incomplete exposure pathway (i.e., groundwater is not used as a drinking water source). Therefore, cleanup goals for this contaminant media are based on ARARs. For each chemical of concern the most stringent level was adopted if cleanup levels were available from more than one ARAR.

For many compounds, no guidance levels have been developed. For these compounds, other ARAR criteria may apply. If additional chemicals of concern are identified at Cameron Station, ARARs will be evaluated on a case-by-case basis. Tables 6-2 and 6-3 are provided to present human health and surface water cleanup standards. A table of ARARs identified for Cameron Station is presented in Appendix F in lieu of these two tables.

**TABLE 6-2. HUMAN HEALTH STANDARDS**

Contaminant	Concentration Level (mg/L)
ARARs are provided in Appendix F. This table is provided if the BCT establishes other cleanup standards.	

Key: mg/L = Milligrams per liter



**TABLE 6-3. SURFACE WATER STANDARDS**

Constituent/Parameter	Concentration Limit/Criteria
<b>CRITERIA FOR DOMESTIC WATER SUPPORT WATER</b>	
ARARs are provided in Appendix F. This table is provided if the BCT establishes other cleanup standards.	
<b>RADIONUCLIDES</b>	

## 6.12 Initiatives for Accelerating Cleanup

Initiatives for expediting RAs have been developed for Cameron Station. Action items, rationale, status and strategies related to developing these initiatives are described in the subsections below.

### 6.12.1 BCT Action Items

The BCT will continue to implement the initiatives for accelerating cleanup, as listed in Section 6.12.3.

### 6.12.2 Rationale

It is desirable to initiate accelerated cleanups at Cameron Station to facilitate the property transfer process.

### 6.12.3 Status/Strategy

The following initiatives have been implemented by the Project Team for expediting response actions at the installation:

- ▶ Identify ARARs - A list of ARARs was developed during the FS by obtaining lists of ARARs from the state and other agencies and examining the Records of Decision (RODs) and DDs for similar sites in Virginia to identify which ARARs are likely to apply.
- ▶ Risk-based Cleanup - Negotiations were pursued with the regulators to agree on risk-based cleanup standards based on future land usage.
- ▶ Define Document Review Process - Terms were negotiated with the regulatory reviewers to streamline the review process by agreeing to a definitive time cycle from the submittal of a draft FS/PP to the signing of a DD.

- ▶ Concurrent Reviews - A complete list of reviewers was developed early and parallel review tracks were implemented to eliminate delays.
- ▶ Community Involvement - The U.S. Army formed the RAB in order to involve the community during the remedial process to encourage support at the time of site closure. The RAB meets on a monthly basis to discuss the status of the environmental restoration program at Cameron Station. By informing the community during the process, the likelihood of opposing comments during the public comment period and implementation of RAs is lessened.
- ▶ Innovative Technologies - Collaborative projects using innovative technologies being researched at the U.S. Army, USEPA, state or suggested by the contractor have been pursued.
- ▶ Innovative Contracting - Flexibility of contracting procedures has been maximized and use of level-of-effort, direct/cost reimbursement, award incentives, and other flexible contracting methods have been investigated and will be implemented where applicable.

## 6.13 RAs

This section summarizes unresolved issues pertaining to the implementation of RAs performed as part of the Cameron Station environmental restoration program. Currently, there are three significant issues regarding RAs at Cameron Station.

### 6.13.1 BCT Action Items

The BCT will ensure that the technical issues that affect RAs are addressed in a timely manner. Specific action items are as follows:

- ▶ Monitor site characterization of off-site benzene plume and evaluate impacts to Cameron Station property condition and RAs.
- ▶ Amend DD to indicate NFA for the former landfill (OU 3).
- ▶ Ensure real estate is kept apprised of RAs which will continue past transfer. Resolve issues relative to access, liability, impact or redevelopment and conflicts with construction. Incorporate necessary conditions to ensure proper operation of long-term RAs into real estate transfer documents.

### 6.13.2 Rationale

Technical issues must be addressed in a timely manner in order to ensure that the RA schedules are not drastically affected and that selected RAs can be executed in an effective manner.



### **6.13.3 Status/Strategy**

The off-site benzene plume not only effects the environmental condition of property but could also affect RAs which are being conducted on the property (i.e., the TCE groundwater plume (OU 5) pump and treatment system). The BCT is monitoring the site characterization study currently being conducted under the direction of the VDEQ. Results of the site characterization study and designs of any RAs to be implemented by the responsible parties will be reviewed by the BCT to determine impacts to Cameron Station.

The groundwater treatment RAs to be implemented at Cameron Station will extend beyond property transfer. Access to the treatment systems are required for maintenance and monitoring. The systems may have to be closed down on a temporary basis to allow for development activity. Procedures to ensure the systems are properly shut down and restarted must be developed. The U.S. Army will not have the ability to monitor the systems on a continual basis. Responsibilities for any failure of the system due to construction or other activities must be resolved with the future owner of the property.

The BCT will work closely with the real estate branch of the USACE to ensure that issues relative to long-term pump and treat systems access, liability, and equipment shutdown/restart oversight are considered during the preparation of real estate transfer documents.

## **6.14 Review of Selected Technologies for Application of Expedited Solutions**

At this time, all of the RAs or NFA determinations have been selected for OUs at Cameron Station, except for the former landfill (OU 3). Action items, rationale and status/strategy for this OU are described in the subsections below.

### **6.14.1 BCT Action Items**

The U.S. Army is currently amending the DD to recommend NFA for the former landfill (OU 3).

### **6.14.2 Rationale**

The U.S. Army has reviewed the selected remedy for the former landfill presented in the DD. This remedy consists of the construction of a landfill cap. After a review of RI and FS data it has been determined that there is no ARAR which necessitates the RA nor is there any human health risk or ecological impact from which would necessitate the RA.

### **6.14.3 Status/Strategy**

The BCT is working with the Fort Myer DPW and the USAEC to expedite the DD amendment process. The community will continue to be kept informed of the process.

## **6.15 Hot Spot Removals**

Several contaminant source or "hot spot" removals have occurred at Cameron Station in the past. There are currently no additional sites which require hot spot removals identified at Cameron Station. Action items, rationale and status/strategy related to this issue are described in more detail in the following subsections.

### **6.15.1 BCT Action Items**

If any additional hot spots are identified at Cameron Station, the BCT will review the situation to determine if removal of the hot spots will expedite cleanup and property transfer efforts. If these efforts will be expedited by a hot spot removal, the BCT may elect to incorporate this approach into the RA strategy for the installation.

### **6.15.2 Rationale**

Hot spot removals may accelerate any required cleanup efforts and facilitate property transfer by removing contaminants which may constitute an immediate risk to human health or the environment.

### **6.15.3 Status/Strategy**

Leaking USTs and associated contaminated soil were removed at the PX Service Station (OU 8) as part of the initial abatement action to eliminate a groundwater contaminant source. Should information arise which would suggest the need for other immediate actions in order to protect human health and the environment, the BCT in conjunction with USAEC, USACE, Baltimore District, and the Environmental Division at Fort Myer will evaluate the situation and make decisions regarding the best strategy for removal.

## **6.16 Identification of Clean Properties**

The identification of clean properties has been completed at Cameron Station. The status and strategy for the continued evaluation of these properties is described in the following subsections.

### **6.16.1 BCT Action Items**

As areas at Cameron Station are remediated, the BCP and associated environmental condition of property and suitable property for transfer maps will be updated to reflect the changes. Similarly, if additional contamination is identified at the installation, appropriate modifications to the maps will be made.

### **6.16.2 Rationale**

It is necessary to identify clean properties as part of the property transfer effort.



SARA Title I, Section 120 to CERCLA addresses the transfer of federal property on which any hazardous substances were stored during any one year period, or is known as the site of any release or disposal of hazardous substances. SARA Title I, Section 120 to CERCLA also requires any deed for the transfer of this federal property to contain, to the extent such information is available on the basis of a complete search of agency files, the following information:

- ▶ A notice of the type and quantity of any hazardous substance storage, release, or disposal.
- ▶ Notice of the time at which such storage, release, or disposal took place.
- ▶ A description of what, if any RA has occurred, and
- ▶ A covenant warranting that appropriate RA will be taken.

Under CERCLA Section 120, federal property which has had a release can not be transferred unless the release has been remediated or has a remedy in place.

In October 1992, Public law 102-426, CERFA amended Section 120(h) of CERCLA and established new requirements with respect to contamination assessment, cleanup, and regulatory agency notification/concurrence for federal facility closures. CERFA requires the federal government, before termination of federal activities on real property, identify property where no hazardous substances were stored, released, or disposed of. The primary CERFA objective is for federal agencies to expeditiously identify real property offering the greatest opportunity for immediate reuse and redevelopment.

### *6.16.3 Status/Strategy*

Sections 3.4 and 3.5, Environmental Condition of Property and Suitability of Property for Transfer, outline the steps Cameron Station has taken to define the environmental condition of property and identify that property which is suitable for transfer as required under CERCLA Section 120 and CERFA.

The CERFA Investigation for the installation was completed in April 1994. An environmental condition of property map was generated as part of that effort and is provided as Figure 3-2 in Section 3.4 of the BCP. The map identifies property in four environmental categories on a one-acre grid basis.

The CERFA map has been further refined as part of the BCP process. A suitable property for transfer map has been developed using information from the CERFA investigation, the installation RI and FS and other sources. The map identifies Cameron Station properties in seven categories based on historical evidence of storage or release of hazardous materials or POL and the status of related restoration activities. This map is provided in Appendix F as Figure 3-3. The map was created using a GIS.

The Environmental Condition of Property Map and Suitable Property for Transfer Map will be updated as areas of Cameron Station are remediated so that an accurate visual portrayal of property available for transfer is maintained.

## **6.17 Overlapping Phases of the Cleanup Process**

RDs will continue to be evaluated to determine where opportunities exist for combining RA efforts at Cameron Station. Specific action items, rationale, and strategies necessary to accomplish this are described in the following subsections.

### **6.17.1 BCT Action Items**

The BCT will continued to review the RDs to evaluate where opportunities exist for combining RAs in order to eliminate duplication of effort.

### **6.17.2 Rationale**

Overlapping RAs can eliminate redundant efforts, reduce costs, expedite cleanup, and subsequently facilitate property transfer.

### **6.17.3 Status/Strategy**

Some RAs planned at Cameron Station have been or will be combined. Asbestos abatement for multiple sites (OU 7) was completed as one RA. OUs 1, 4, and 6 are being completed under one contract because they all involve the excavation and off-site disposal of contaminated materials. Tank removal activities at various locations associated with OU 12 will also be conducted under one contract. These procedures will result in reduced administrative costs, reduced mobilization, and demobilization costs by the RA contractor and other type and cost savings associated with economies of sale.

In order to expedite cleanup and transfer of the property, the BCT and the Project Team have developed a master schedule which provides for the overlapped implementation of all RAs at the installation. This will expedite the cleanup process so that, with the exception of long-term groundwater treatment RAs, restoration at Cameron Station will be complete by the time of closure. The master schedule is provided as Figure 5-1 in Chapter 5 of the BCP.

## **6.18 Improved Contracting Procedures**

Efficient and cost-effective contracting procedures are necessary to expedite the restoration process. Specific action items, rationale and status/strategies for improved contracting procedures are outlined in the subsections below.

### **6.18.1 BCT Action Items**

The Cameron Station Project Team will continue to pursue the use of contracting mechanisms that are efficient and cost-effective.



### **6.18.2 Rationale**

Streamlined contracting procedures can provide for the execution of more time- and cost-effective RAs and subsequently facilitate property transfer.

### **6.18.3 Status/Strategy**

The U.S. Army is currently looking at implementing Total Environmental Restoration Contracts (TERCs) to allow the environmental studies, RDs and RAs to be completed by one contractor under one contract in order to expedite the restoration process. Because the restoration process at Cameron Station is in its advanced stages, implementation of TERCs does not apply. However, the Cameron Station Project Team is continuing to pursue the use of efficient and cost-effective contracting procedures. For example, the Fort Myer DPW is using smaller cleanup contracts to complete the soil removal RAs for OUs 1, 4, and 6 as opposed to grouping the work with more complicated RAs for OUs 5 and 8, thereby expediting the cleanup of these sites.

## **6.19 Interfacing with the Community Reuse Plan**

Interfacing with a community reuse plan is desirable to expedite implementation of RAs and identification and transfer of parcels to the community. This section identifies issues that need to be resolved relative to this process.

### **6.19.1 BCT Action Items**

In order to ensure that community reuse planning goals continue to be communicated to the BCT and the Project Team, the Base Transition Coordinator (BCT) will continue to attend all Cameron Station Reuse Task Force meetings and monthly RAB meetings.

### **6.19.2 Rationale**

Coordination with the Task Force to Monitor the Closing of Cameron Station is necessary in order to identify community reuse goals, select appropriate cleanup standards, facilitate implementation of remedial alternatives, and ultimately transfer property expeditiously and in a manner consistent with the community reuse plan.

### **6.19.3 Status/Strategy**

The BCT is using the reuse scenario provided by the Cameron Station Reuse Task Force to evaluate the restoration of Cameron Station with respect to future land use. The BTC attends all meetings of the Task Force and relays information to the BCT. The RAB provides further community participation in the environmental restoration process for Cameron Station.

The PIRP will be updated as necessary to ensure that the procedures for community information exchange outlined in the plan are adequate. At this time, the PIRP does not require updating.

## **6.20 Bias for Cleanup Instead of Studies**

Whenever possible, the BCT will select early cleanup rather than additional studies of potentially contaminated sites. This approach will expedite early achievement of cleanup goals and transfer of property. Specific action items and strategies related to this topic are provided in the subsections below.

### **6.20.1 BCT Action Items**

The BCT will make every effort to implement any necessary remedial technologies as soon as possible to facilitate transfer of Cameron Station. This will be accomplished through the use of expedited contracts and shortened review cycles whenever possible.

### **6.20.2 Rationale**

Early implementation of remedial alternatives will reduce the need for additional studies of contaminated sites and will accelerate completion of cleanup activities. This in turn will facilitate property transfer efforts.

### **6.20.3 Status/Strategy**

Where applicable, the BCT will promote cleanup instead of studies.

## **6.21 Expert Input on Contamination and Potential RAs**

It is necessary that proper resources are used to evaluate contamination and associated RAs. The following sections outline action items, rationale, status and strategies related to this issue.

### **6.21.1 BCT Action Items**

The BCT is currently utilizing the state, USEPA, USAEC, U.S. Army Environmental Hygiene Agency (USAEHA) and contractors to ensure that the property resources are used to evaluate contamination and potential RAs.

### **6.21.2 Rationale**

The use of several entities involved in the restoration at Cameron Station will promote an expedited property transfer process.

### **6.21.3 Status/Strategy**

The state, USEPA, USAEC, USAEHA, and contractors will continue to ensure that the proper resources are used to evaluate contamination and potential RAs.



## **6.22 Generic Remedies**

The USEPA has issued guidance on "generic" or "presumptive" remedies for a few specific contamination scenarios, e.g., one of the generic remedies for vadose zone volatile organic compound contamination is soil vapor extraction. Some of these generic remedies may be applicable to Cameron Station if contamination scenarios are similar to those in the generic remedy guidance. Action items, rationale, status and strategies related to generic remedy implementation at Cameron Station are described in the following subsections.

### **6.22.1 BCT Action Items**

The BCT will consider generic remedies to expedite implementation of the installation's RA strategy.

### **6.22.2 Rationale**

The use of generic remedies may potentially expedite the cleanup process by allowing for expedited implementation of cleanup technologies.

### **6.22.3 Status/Strategy**

Generic remedies will be used where applicable.

## **6.23 Partnering (Using Innovative Management, Coordination, and Communication Techniques)**

Partnering is the process of fostering cooperation and communication between key players in the BRAC process. Outstanding issues relative to this process are described in the following subsections.

### **6.23.1 BCT Action Items**

At the present time, the BCT is actively fostering partnerships with USAEC, the Task Force to Monitor the Closing of Cameron Station, the Cameron Station RAB, and regulatory agencies through scheduled meetings and the document review process.

### **6.23.2 Rationale**

Close cooperation/coordination between Cameron Station, USAEC, the community, and regulators helps foster good working relationships, and can accelerate implementation of the installation's RA strategy by keeping "key players" informed of the status of environmental efforts, soliciting their input, and addressing potential concerns in the remediation process.

### **6.23.3 Status/Strategy**

The BCT plans to continue its activities and to encourage information transfer between Cameron Station, USAEC, the community, and regulators.

## **6.24 Updating the CERFA Report and Natural/Cultural Resources Documentation**

Outstanding issues related to updating the CERFA and Natural/Cultural Resource documents for Cameron Station are outlined in this section.

### **6.24.1 BCT Action Items**

At the present time, Cameron Station natural and cultural resources are well documented. Environmental Condition of Property and Suitable Property for Transfer Maps will be updated as necessary based on the results of ongoing restorations at Cameron Station.

### **6.24.2 Rationale**

Updates of the Environmental Condition of Property and Suitable Property for Transfer Maps are necessary to reflect changes in property classification based on completion of RAs. It is anticipated that property reclassification will ultimately result in most, if not all, of Cameron Station becoming eligible for property transfer.

### **6.24.3 Status/Strategy**

Natural resources at Cameron Station were documented to support the Closure EIS completed for Fort Belvoir in 1992. Cultural resources were fully documented during a Cultural Resources Investigation completed in August 1992.

The CERFA report was finalized in April 1994. The Environmental Condition of Property map and associated CERFA regulatory concurrence map are provided as Figure 3-2 in Chapter 3 of this BCP.

A Suitable Property for Transfer Map has been produced for the installation and is included as Figure 3-3 in Appendix F of this BCP. The map which classifies property in seven environmental condition categories was generated using a GIS. The BCT will periodically review the CERFA report, Environmental Condition of Property and Suitable Property for Transfer Maps, in conjunction with new data from RAs to determine if parcels can be reclassified to allow property transfer.

## **6.25 Implementing the Policy for On-Site Decision Making**

If decisions leading to investigation, remediation, and transfer of Cameron Station can be made onsite, implementation of the installation-wide RA strategy will be expedited. This section describes outstanding issues relative to the implementation of policies to provide for such on-site decision making.



### **6.25.1 BCT Action Items**

At the present time, the BCT is actively fostering partnerships with USAEC, the community, and regulatory agencies through scheduled meetings and the document review process. This will enhance the BCT's ability to make effective onsite decisions and will speed the BRAC process.

### **6.25.2 Rationale**

Close cooperation/coordination between Cameron Station, USAEC, the community, and regulators helps to foster good working relationships, and can accelerate implementation of the installation-wide RA strategy by keeping "key players" informed of the status of environmental efforts, soliciting their input, allowing effective onsite decision making, and addressing potential concerns in the remediation process.

### **6.25.3 Status/Strategy**

The BCT plans to continue its activities and to encourage information transfer between Cameron Station, the community, and regulators.

## **6.26 Structural and Infrastructure Constraints to Reuse**

Outstanding issues relative to structural and infrastructure constraints to reuse are identified in this section.

### **6.26.1 BCT Action Items**

At the present time, no structural or infrastructure constraints to the reuse of Cameron Station have been identified. If structural and infrastructure constraints to the reuse of Cameron Station are identified, the BCT will evaluate approaches for overcoming these constraints, or for alternative reuses, so the property can be transferred.

### **6.26.2 Rationale**

Potential structural and infrastructure constraints must be overcome, or alternative reuses must be identified, to allow transfer of Cameron Station.

### **6.26.3 Status/Strategy**

At the present time, no structural or infrastructure constraints to the reuse of Cameron Station have been identified.

## **6.27 Other Technical Reuse Issues to be Resolved**

At the present time, no other technical reuse issues have been identified.

# CHAPTER 7

---

## ► PRIMARY REFERENCES ◀

*Enhanced Preliminary Assessment Report, Cameron Station*, Environmental Research Division, Argonne National Laboratory, October 1989.

*Draft Biological Assessment of Threatened and Endangered Species (BATES), Fort Belvoir, Cameron Station, Fort Myer*, July 1990.

*Comprehensive Base Realignment/Closure and Fort Belvoir Development Environmental Impact Statement*, excerpts, U.S. Army Corps of Engineers, Baltimore District, August 1991.

*Cameron Station Remedial Investigation, Final Report, Volume 1*, Woodward-Clyde Federal Services, February 1993.

*Cameron Station Feasibility Study, Final Report*, Woodward-Clyde Federal Services, February 1993.

*Public Involvement and Response Plan (PIRP), Cameron Station*, Dames & Moore, April 1993.

*U.S. Army Base Closure Program Decision Document, Cameron Station*, Woodward-Clyde Federal Services, June 1993.

*Cameron Station Disposal and Reuse Environmental Assessment*, U.S. Army Corps of Engineers, Baltimore District, November 1993.

*Finding of No Significant Impact, Cameron Station*, Military District of Washington, 23 November 1993.

*Supplementary Preliminary Assessment Community Environmental Response Facilitation Act (CERFA PA), Cameron Station*, Environmental Resources Management, Inc., 11 April 1994.



**This page intentionally left blank.**

# APPENDIX A

---

## ► FISCAL YEAR FUNDING REQUIREMENTS/COSTS ◄



**This page intentionally left blank.**

**TABLE A-1. TOTAL ENVIRONMENTAL PROGRAM SUMMARY**

FUND REQUIREMENTS (\$000)							
Program	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	Total
IRP DERA	0	0	0	0	0	0	0
IRP BRAC	503	0	0	0	50	50	603
EC-CR <sup>1</sup>	210	0	0	0	0	0	210
EC-MR <sup>2</sup>	289	180	15	10	10	0	504
NAT/CULT	0	0	0	0	0	0	0
Subtotal	1,002	180	15	10	60	50	1,317
NEPA	0	0	0	0	0	0	0
Total	1,002	180	15	10	60	50	1,317

**TABLE A-2. HISTORICAL ENVIRONMENTAL PROGRAM EXPENDITURES SUMMARY**

FUND REQUIREMENTS (\$000)										
Program	FY 1986	FY 1987	FY 1988	FY 1989	FY 1990	FY 1991	FY 1992	FY 1993	FY 1994	Total
IRP DERA				250	0	0	0	0	0	250
IRP BRAC				143	1,640	1,322	30	710	752	4,597
EC-CR <sup>1</sup>				--	460	248	200	716	100	1,724
EC-MR <sup>2</sup>				--	--	472	860	1,802	240	3,374
NAT/CULT <sup>3</sup>				--	--	--	--	--	--	--
Subtotal				393	2,100	2,042	1,090	3,228	1,092	9,945
NEPA (Disposal & Reuse EA)				--	--	--	--	72	--	--
Total				393	2,100	2,042	1,090	3,300	1,092	10,017

<sup>1</sup>Environmental Compliance-Closure Related.<sup>2</sup>Environmental Compliance-Mission Related.<sup>3</sup>Natural and Cultural Resource Investigations were done as part of the August 1991 Comprehensive Base Realignment/Closure and Fort Belvoir Development Environmental Impact Statement; the cost for the Environmental Impact Statement is not reflected in the Cameron Station NEPA costs shown in this table.



**This page intentionally left blank.**

## **APPENDIX B**

---

### **► INSTALLATION ENVIRONMENTAL RESTORATION DOCUMENTS SUMMARY TABLES ◀**



**This page intentionally left blank.**

**TABLE B-1. PROJECT DELIVERABLES**

Year	Phase	Project Title	Project Description	Report No.	Sites Examined	Delivery Date	By Whom
1989	PA	Enhanced Preliminary Assessment Report	Records search/site investigation	1	Sites not defined	October 1989	Argonne National Laboratory
1992	PA	Enhanced Preliminary Assessment Report Addendum	Addendum to Enhanced PA	2	Sites not defined	1992	Argonne National Laboratory
1993	RI	Remedial Investigation	Site characterization and risk assessment	3	OUs 1 - 12	1993	Woodward-Clyde
1993	FS	Feasibility Study	Remedial alternatives evaluation	4	OUs 1 - 12	1993	Woodward-Clyde
1993	PP	Proposed Plan	Installation-wide proposed remedy selection	5	OUs 1 - 12	1993	USAEC
1993	DD	Decision Document	Remedy selection and NFAs documentation	6	OUs 1 - 12	1993	USAEC
1993	RD	Corrective Action Plan	Remedy selection documentation for OU 8	7	OU 8	1993	VDEQ/USACE



**TABLE B-2. SITE DELIVERABLES**

Site ID	IRP Phase <sup>(1)</sup>						
	PA/SI	RI/FS	RD/RA	Close Out	IRA	LTM	NFRAP
OU 1	1	3,4	5,6				
OU 2	1	3,4	5,6				6
OU 3	1	3,4	5,6				TBD
OU 4	1	3,4	5,6				
OU 5	1	3,4	5,6				
OU 6		3,4	5,6				
OU 7	1	3,4	5,6				
OU 8	1	3,4	5,6,7				
OU 9	1	3,4	5,6				6
OU 10	1	3,4	5,6				6
OU 11	1	3,4	5,6				6
OU 12	1	3,4	5,6				

<sup>(1)</sup>Numbers refer to report numbers listed in Table B-1, Project Deliverables.

**TABLE B-3. TECHNICAL DOCUMENTS/  
DATA LOADING STATUS SUMMARY**

Date	IRP Title	Site/OU	Contractor	Service Center	IRDMIS Status/Other
February 1993	Remedial Investigation	OUs 1 - 12	Woodward- Clyde/Potomac Research Inc.	USAEC	Loading Complete



**This page intentionally left blank.**

# APPENDIX C

---

## ► DECISION DOCUMENT/ROD SUMMARIES ◀



**This page intentionally left blank.**

# APPENDIX C

## ► DECISION DOCUMENT/ROD SUMMARIES ◀

As of December 1993, Cameron Station has prepared one Decision Document for OUs 1 through 12. The Decision Document corresponds roughly to a Record of Decision that would have been issued had Cameron Station actually been a CERCLA site. The Decision Document summarized the findings of the RI report and the remedial alternatives selected to address the contamination found in six of the twelve OUs at Cameron Station.

For OU 1 (PCB Transformer Service, Storage, and Spill Areas), the selected remedial alternative is excavation and off-site disposal in a RCRA Subtitle C Landfill.

For OU 3 (Landfill), the selected remedial alternative is soil capping and monitoring.

For OU 4 (Pesticide Use and Storage Areas), the selected remedial alternative is excavation and off-site disposal in RCRA Subtitle C Landfill.

For OU 5 (Sanitary and Storm Sewer Systems), the selected remedial alternative is groundwater collection followed by air stripping and discharge to surface water with carbon treatment of air discharge.

For OU 6 (Acid Pits), the selected remedial alternative is excavation and off-site thermal oxidation and solidification.

For OU 8 (PX Service Station and Building 2 Underground Storage Tanks), the selected remedial alternative is groundwater collection followed by air stripping and in-situ bioremediation.

OUs that were not designated as sources of contamination, but will undergo remedial action, include OU 7 (Asbestos in Buildings) and OU 12 (Other Underground Storage Tanks).

OUs that require no further action include OU 2 (Cameron Lake, Burn Pits, and Dredge Spoil Disposal Areas), OU 9 (Road Oiling and Fly Ash Disposal Areas), OU 10 (Surface Water Areas), and OU 11 (Pigeon Roosting in Building 21).

**Note:** The Cameron Station DD is currently undergoing an amendment process which recommends NFRAP for OU 3.



**This page intentionally left blank.**

## APPENDIX D

---

### ► NO FURTHER RESPONSE ACTION PLANNED (NFRAP) SUMMARIES ◄



**This page intentionally left blank.**

# APPENDIX D

## ► NO FURTHER RESPONSE ACTION PLANNED (NFRAP) SUMMARIES ◀

In the December 1993 Decision Document referenced in Appendix C, it was determined that six of the OUs at Cameron Station require remediation. Two OUs will undergo remedial action, although they are not sources of contamination. Based on the investigations during the RI, it was determined that the remaining four OUs required no further action. Though separate Decision Documents were not prepared for these four OUs, the no further action decisions were outlined collectively in the Decision Document.

The OUs that require no further action include:

- OU 2 - Cameron Lake, Burn Pits, and Dredge Spoil Disposal Areas
- OU 9 - Road Oiling and Fly Ash Disposal Areas
- OU 10 - Surface Water Areas
- OU 11 - Pigeon Roosting in Building 21.

Prior to 1970, waste oil was applied to unpaved roads in the vicinity of Building 9 for dust suppression. In addition, this area had possibly been used for disposal of fly ash from the boiler house (Building 21). The road oiling and fly ash disposal areas were designated OU 9 during the RI. The RI did not identify any significant contamination in this operable unit.

Surface waters including Backlick Run, Holmes Run, and Cameron Run were designated as OU 10 during the RI. Stormwater runoff from the installation enters Backlick Run either directly by drainage systems and overland flow, or indirectly through Cameron Lake. The analytical results of surface water samples taken during the RI indicate that the surface water in the vicinity of Cameron Station is typical for an urban watershed area such as Cameron Run. RI investigations indicated that no wastes from activities at Cameron Station were discharged into the runs; therefore, remediation is not warranted.

A former pigeon roosting problem was identified at Building 21 during the project planning stage of the RI. Pigeons had roosted in the upper areas of the building and droppings had accumulated to several inches thick beneath the roost sites. The presence of these droppings presented a concern for the possibility of a fungus infection being transmitted to facility workers or future exposed populations. The pigeon roosting at Building 21 was designated OU 11 during the RI. According to the RI, no contamination resulting from the pigeon roosting was found in Building 21. Adequate controls have been put into place to prevent further accumulation of pigeon droppings and the existing wastes were removed. Further investigation is not warranted.

The RI indicates that there is no significant contamination related to the former landfill (OU 3). In addition, there are no regulatory requirements to cap the unit as presented in DD. As a result, the DD is currently undergoing an amendment process which recommends NFRAP for the OU.



**This page intentionally left blank.**

## APPENDIX E

---

### ► CONCEPTUAL SITE MODEL DATA SUMMARIES ◀

Exposure profiles were developed as part of the baseline human health risk assessment completed for the Cameron Station RI. These scenarios were used to generate conceptual site models for each OU at Cameron Station that requires remedial action. The Cameron Station conceptual site models identify potential contaminant sources, exposure media, exposure routes and receptor populations. The models provide a framework for understanding RI sample analysis data and the baseline risk assessment. A summary of the conceptual site model exposure profiles is provided as Table E-1. Contaminant transport diagrams and graphical presentations of the conceptual site model for each OU that was identified as requiring remedial action are provided as Figures E-1 through E-14.



**This page intentionally left blank.**

**TABLE E-1. EXPOSURE SCENARIOS EVALUATED AT CAMERON STATION**

Exposed Population	Exposure Point/ Exposure Medium	Phase I and II Sample Locations	Exposure Route
<b>CURRENT LAND USE</b>			
Recreational Visitor (Child)	• Volatile Organics in Air at Cameron Lake from TPH in Subsurface Soil	USB42, MWS7	Inhalation
	• Air Particulates at Cameron Lake from Landfill Surface Soil	SB1, MWS8, SBMWS8	Inhalation
	• Cameron Lake Surface Water	CL1 to CL9 CL1 to CL9	Oral Dermal
	• Cameron Lake Sediment	CL1 to CL9 CL1 to CL9	Oral Dermal
	• Cameron Lake Fish	FISH1, FISH2	Oral
	• Air Particulates from Service Road Surface Soil at Picnic Ground	SB2 to SB4	Inhalation
	• Air Particulates from Service Road Surface Soil at Ballfield	SB2 to SB4	Inhalation
Recreational Visitor (Adult)	• Volatile Organics in Air at Cameron Lake from TPH in Subsurface Soil	USB42, MWS7	Inhalation
	• Air Particulates at Cameron Lake from Landfill Surface Soil	SB1, MWS8, SBMWS8	Inhalation
	• Air Particulates from Service Road Surface Soil at Picnic Ground	SB2 to SB4	Inhalation
	• Air Particulates from Service Road Surface Soil at Ballfield	SB2 to SB4	Inhalation
Adult Exerciser/Jogger	• Air Particulates on Jogging Trail from Landfill Surface Soil	SB1, MWS8, SBMWS8	Inhalation
	• Air Particulates at Ballfield from Service Road Surface Soil	SB2 to SB4	Inhalation
Gas Station Worker	• Volatile Organics in Air from TPH <sup>(a)</sup> in Subsurface Soil	USB42, MWS7	Inhalation
	• Air Particulates from Landfill Surface Soil	SB1, MWS8, SBMWS8	Inhalation
Outdoor Maintenance Worker	• Fenceline Surface Soil	SOFL1 to SOFL21	Oral Dermal
	• Surface Soil Behind Building 30	Building 9, Samples A and B	Oral Dermal
	• Air Particulates from Surface Soil Behind Building 30	Building 9, Samples A and B	Inhalation



**TABLE E-1. EXPOSURE SCENARIOS EVALUATED AT CAMERON STATION****Continued**

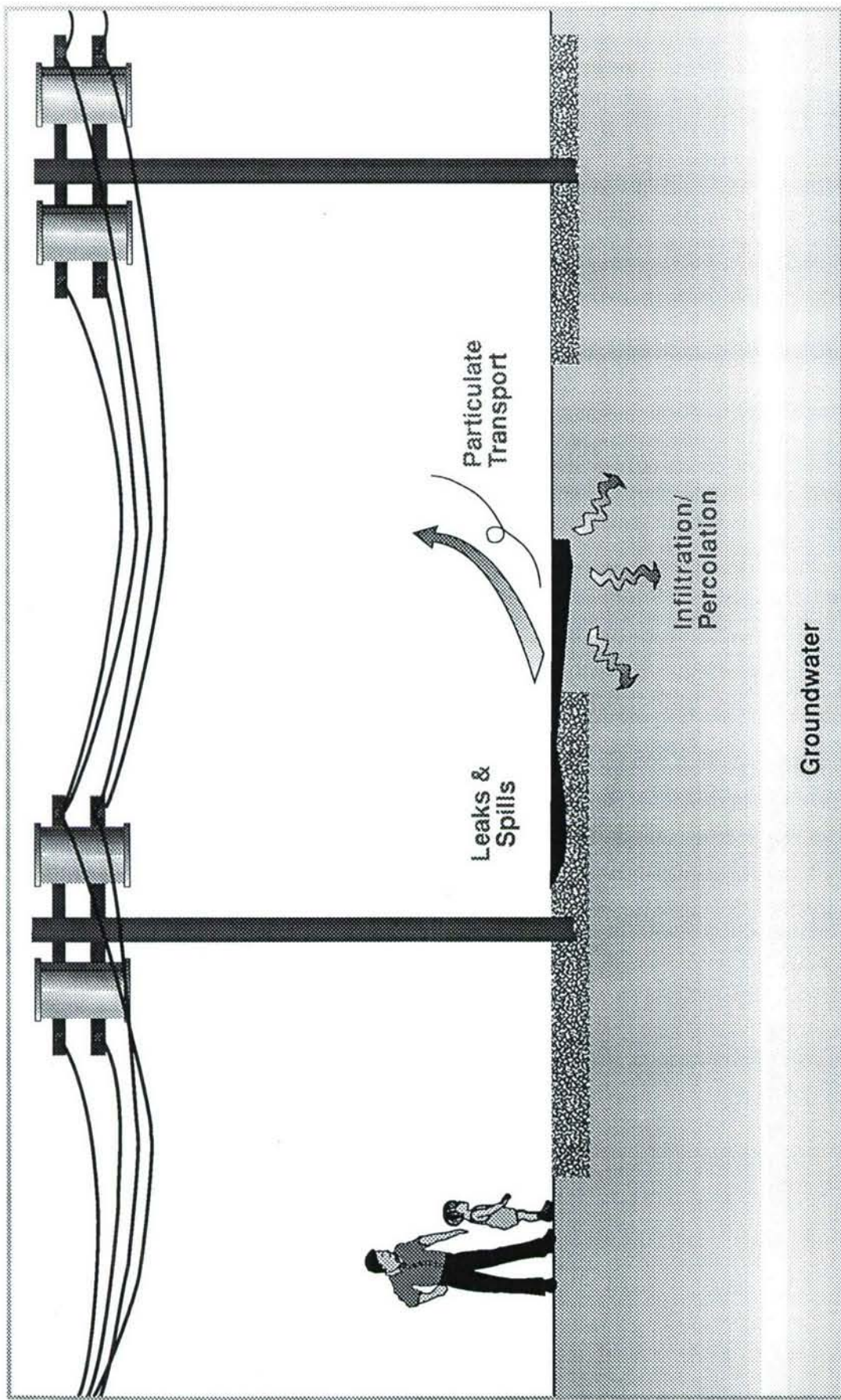
Exposed Population	Exposure Point/ Exposure Medium	Phase I and II Sample Locations	Exposure Route
<b>CURRENT LAND USE (CONTINUED)</b>			
Wader (9-16 Year Old)	• Holmes Run, Surface Water and Sediment	HR2, 3	Oral Dermal
	• Backlick Run, Surface Water and Sediment	BR2, 3 BR9, 10	Oral Dermal
	• Cameron Run, Surface Water and Sediment	CR1 to CR3	Oral Dermal
<b>FUTURE LAND USE</b>			
Child Onsite Resident	• Volatile Organics in Air at Cameron Lake from TPH in Subsurface Soil	USB42, MWS7	Inhalation
	• Air Particulates at Cameron Lake from Landfill Surface Soil	SB1, MWS8, SBMWS8	Inhalation
	• Cameron Lake Surface Water	CL1 to CL9 CL1 to CL9	Oral Dermal
	• Cameron Lake Sediment	CL1 to CL9 CL1 to CL9	Oral Dermal
	• Cameron Lake Fish	FISH1, FISH2	Oral
	• Volatile Organics in Air at Residence from TPH in Subsurface Soil	USB42, MWS7	Inhalation
	• Yard Soil at Future Residence	(b)	Oral Dermal
	• Landfill Soil	SB1, MWS8, SBMWS8	Oral Dermal
	• Air Particulates from Service Road Surface Soil at Picnic Ground	SB2 to SB4	Inhalation
	• Air Particulates from Service Road Surface Soil at Ballfield	SB2 to SB4	Inhalation
	• Contaminated Soil by PCB Poles	Pole 180C-E, 192A-C	Oral Dermal
Adult Onsite Resident	• Volatile Organics in Air at Cameron Lake from TPH in Subsurface Soil	USB42, MWS7	Inhalation
	• Air Particulates at Cameron Lake from Landfill Surface Soil	SB1, MWS8, SBMWS8	Inhalation
	• Volatile Organics in Air at Residence from TPH in Subsurface Soil	USB42, MWS7	Inhalation
	• Yard Soil at Future Residence	(b)	Oral Dermal

**TABLE E-1. EXPOSURE SCENARIOS EVALUATED AT CAMERON STATION****Continued**

Exposed Population	Exposure Point/ Exposure Medium	Phase I and II Sample Locations	Exposure Route
<b>FUTURE LAND USE (CONTINUED)</b>			
Adult Onsite Resident (Continued)	• Air Particulates from Service Road Surface Soil at Picnic Ground	SB2 to SB4	Inhalation
	• Air Particulates from Service Road Surface Soil at Ballfield	SB2 to SB4	Inhalation
	• Air Particulates on Jogging Trail from Landfill Surface Soil	SB1, MWS8, SBMWS8	Inhalation
	• Contaminated Soil by PCB Poles	Pole 180C-E, 192A-C	Oral Dermal
On-Site Construction Worker	• Construction Site Soils	(b)	Oral Dermal Inhalation

<sup>(a)</sup>Total petroleum hydrocarbons.<sup>(b)</sup>BLDG01, 03-05, 08 (C&D from each); SORL3-8; USB36, 39, 40; MSW14, 15; POLE100C-E, 150A-C, 220B, 230C-E, 238C-E, 300B.

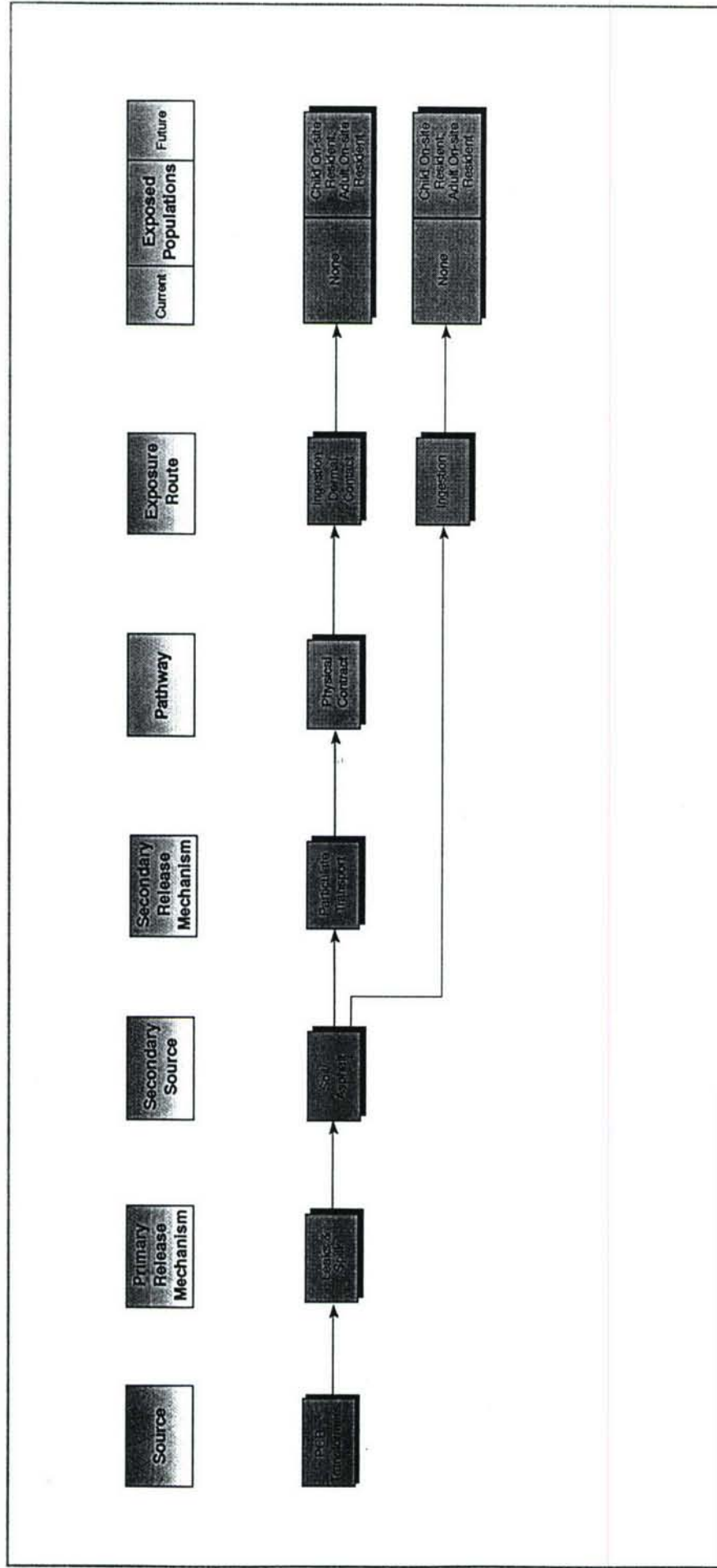




Remedial Investigation  
Report, Cameron Station  
(February 1993)

Conceptual Site Model  
PCB Transformers (OU1)

Figure E-1

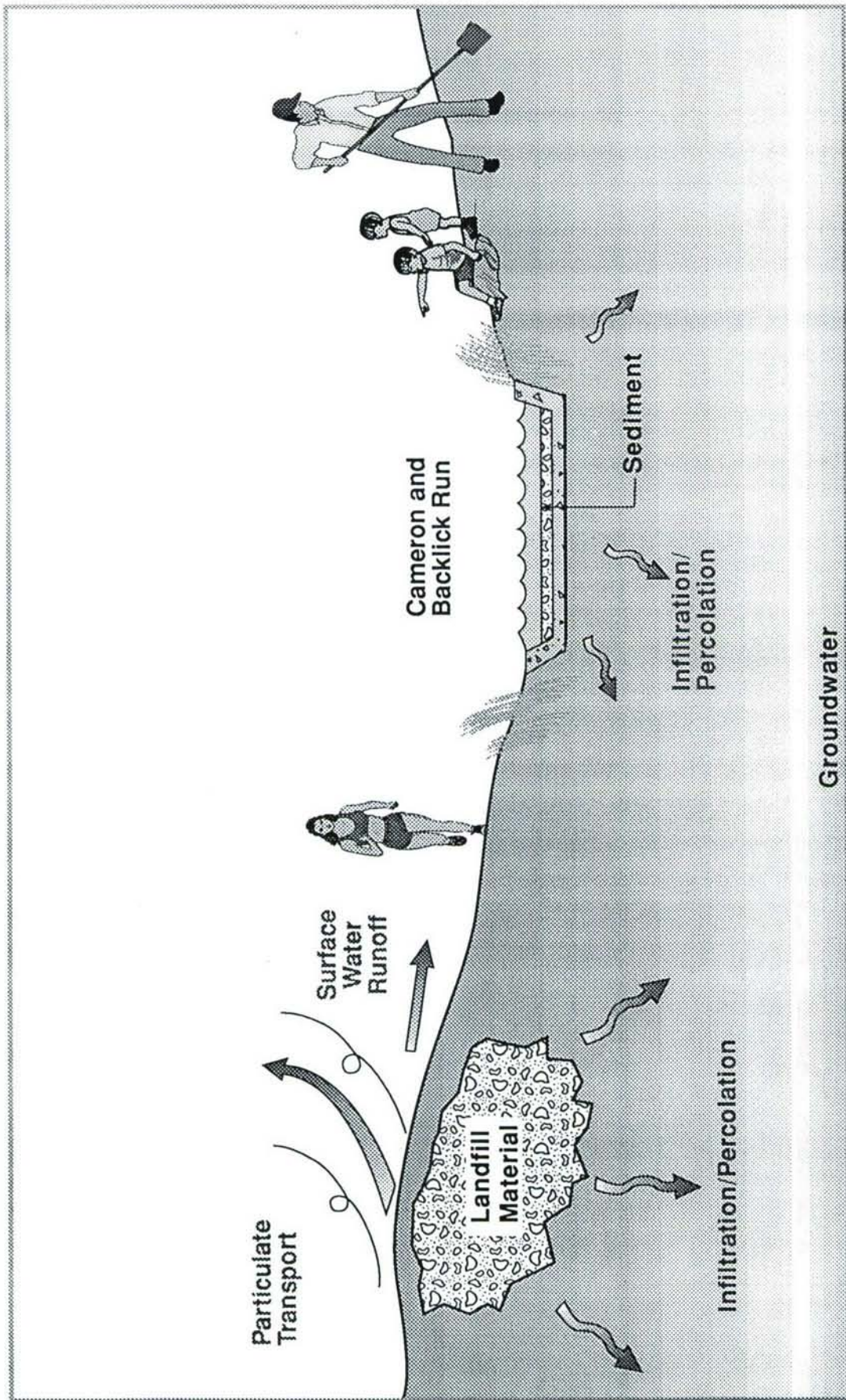


Remedial Investigation  
Report, Cameron Station  
(February 1993)

Conceptual Site Model  
PCB Transformers (OU1)

Figure E-2

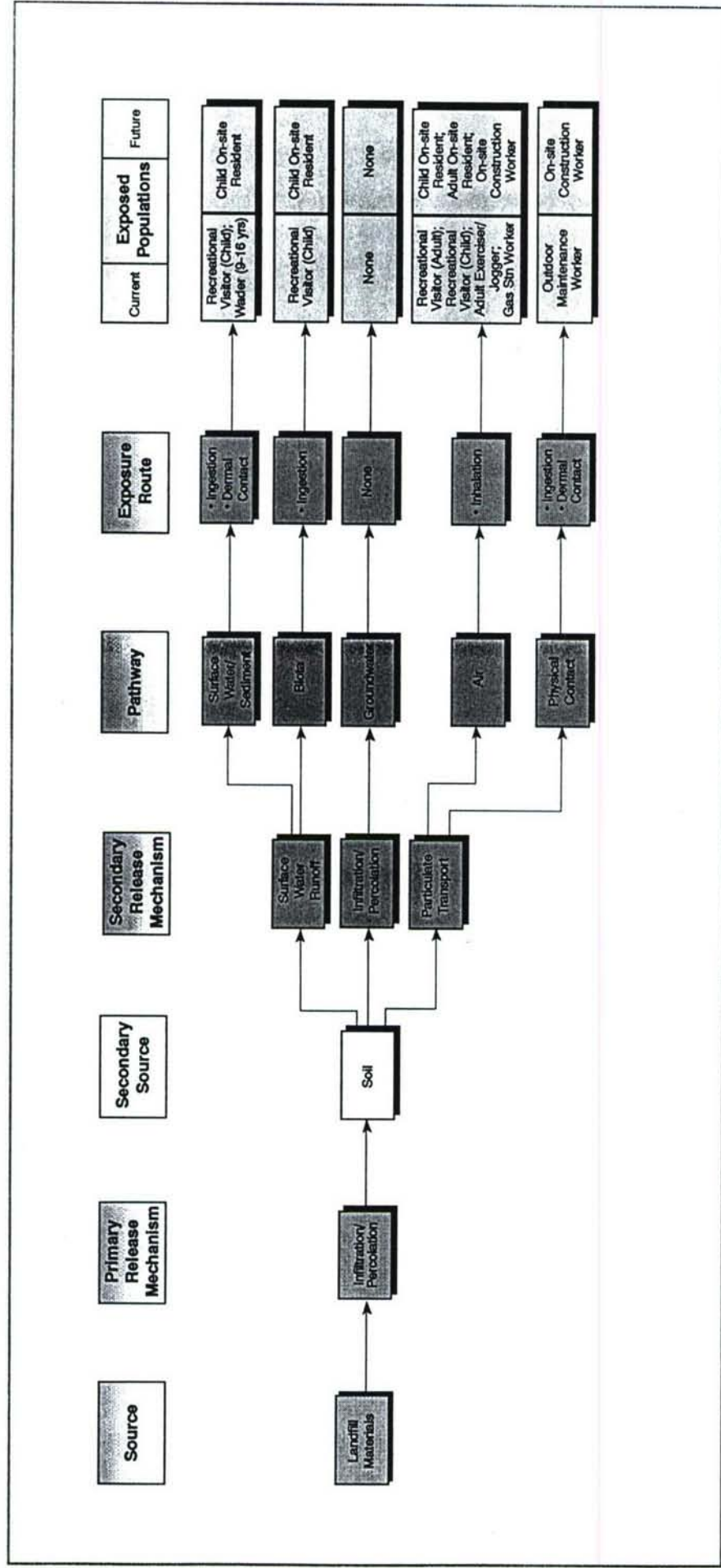




Remedial Investigation  
Report, Cameron Station  
(February 1993)

Conceptual Site Model  
Former Landfill (OU3)

Figure E-3

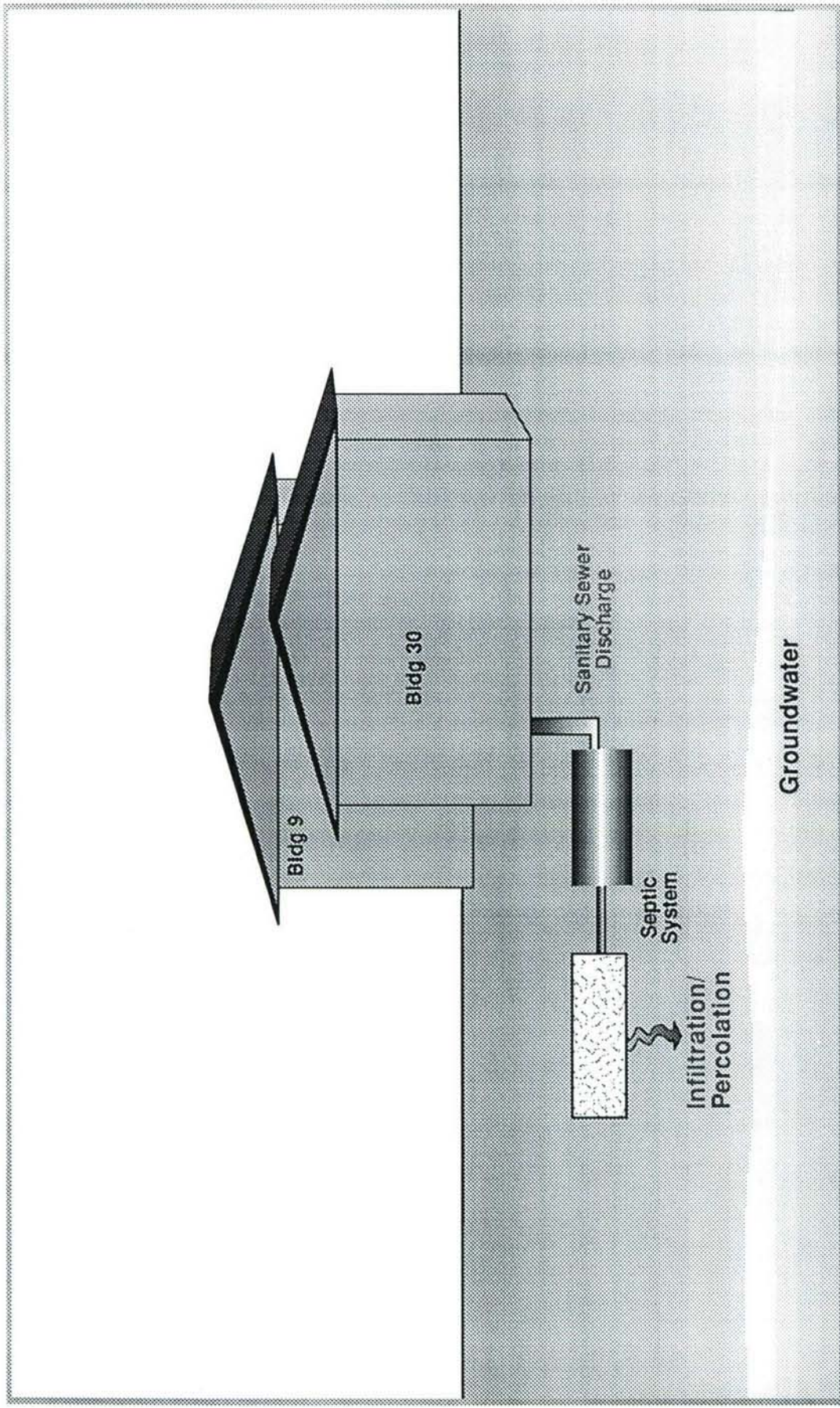


Remedial Investigation  
Report, Cameron Station  
(February 1993)

Conceptual Site Model  
Former Landfill (OU3)

Figure E-4

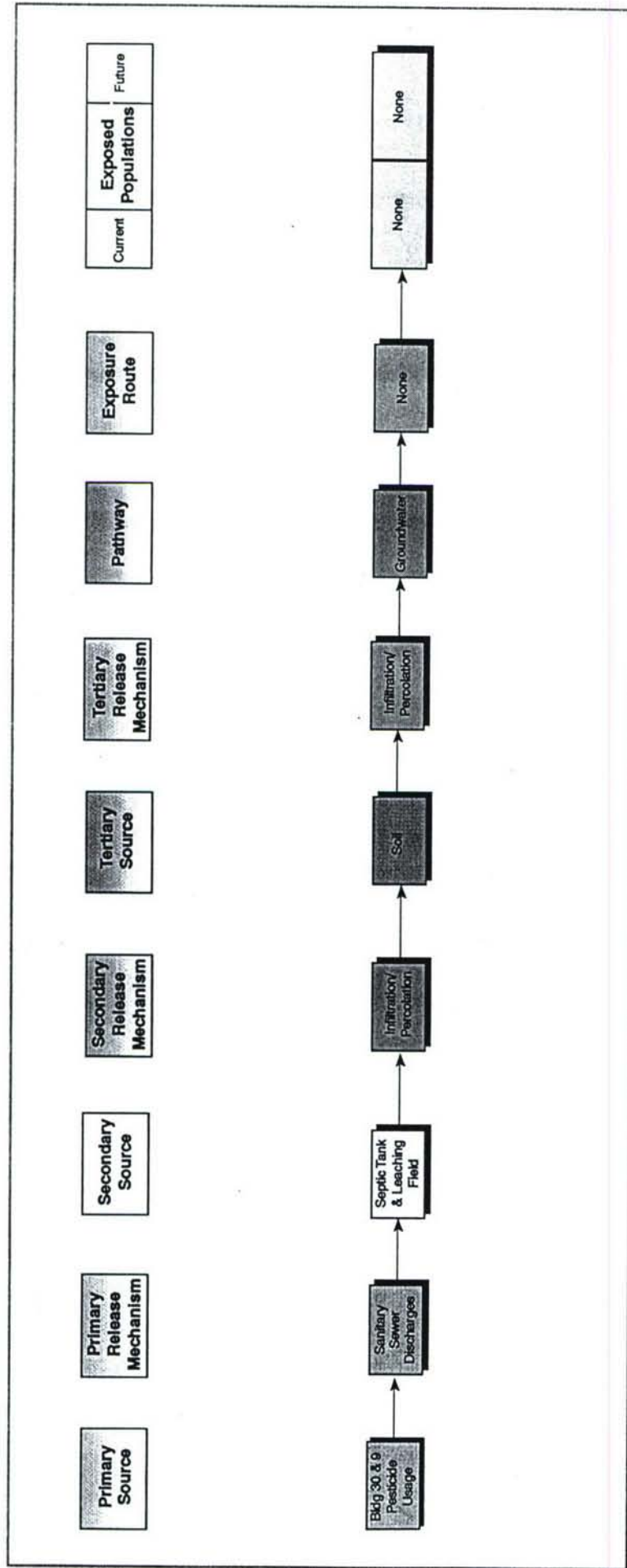




Remedial Investigation  
Report, Cameron Station  
(February 1993)

Conceptual Site Model  
Pesticide Usage  
Bldg 30 and 9 (OU4)

Figure E-5

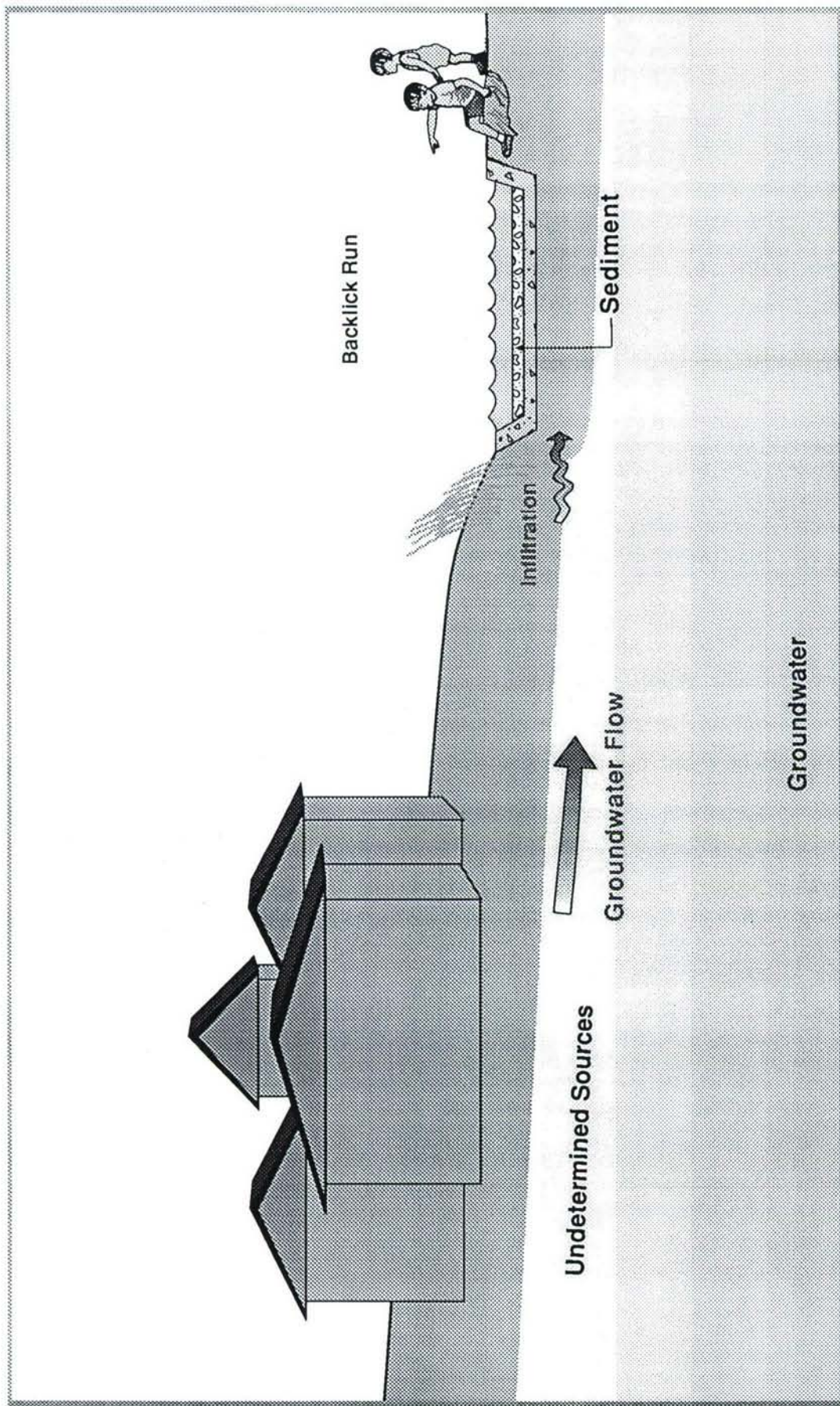


Remedial Investigation  
Report, Cameron Station  
(February 1993)

Conceptual Site Model  
Pesticide Usage-  
Bldg 30 and 9 (OU4)

Figure E-6

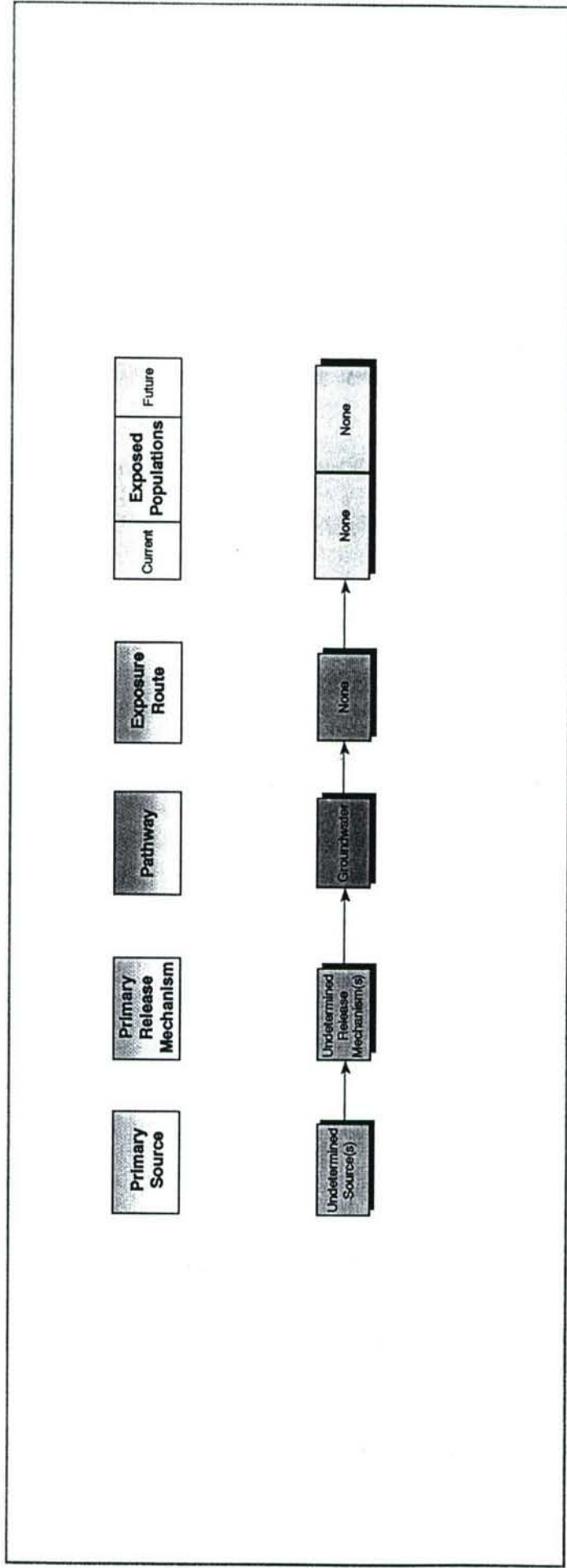




Remedial Investigation  
Report, Cameron Station  
(February 1993)

Conceptual Site Model  
Solvent Groundwater  
Contamination Plume (OU5)

Figure E-7



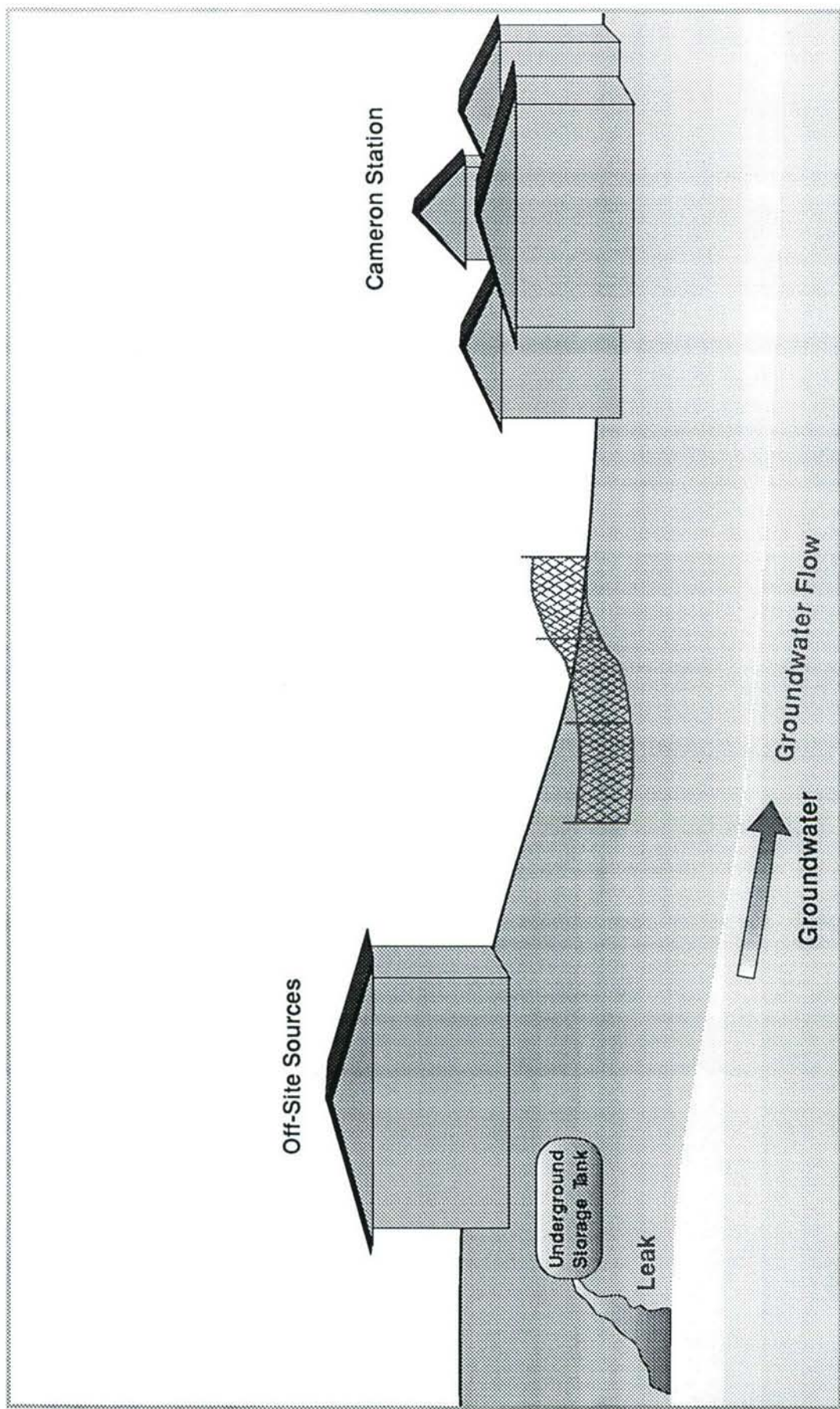
Remedial Investigation Report, Cameron Station (February 1993)

Conceptual Site Model

Solvent Groundwater Plume (OU5)

Figure E-8





Remedial Investigation  
Report, Cameron Station  
(February 1993)

Conceptual Site Model  
Off-Site Benzene Groundwater  
Plume (OU5)

Figure E-9

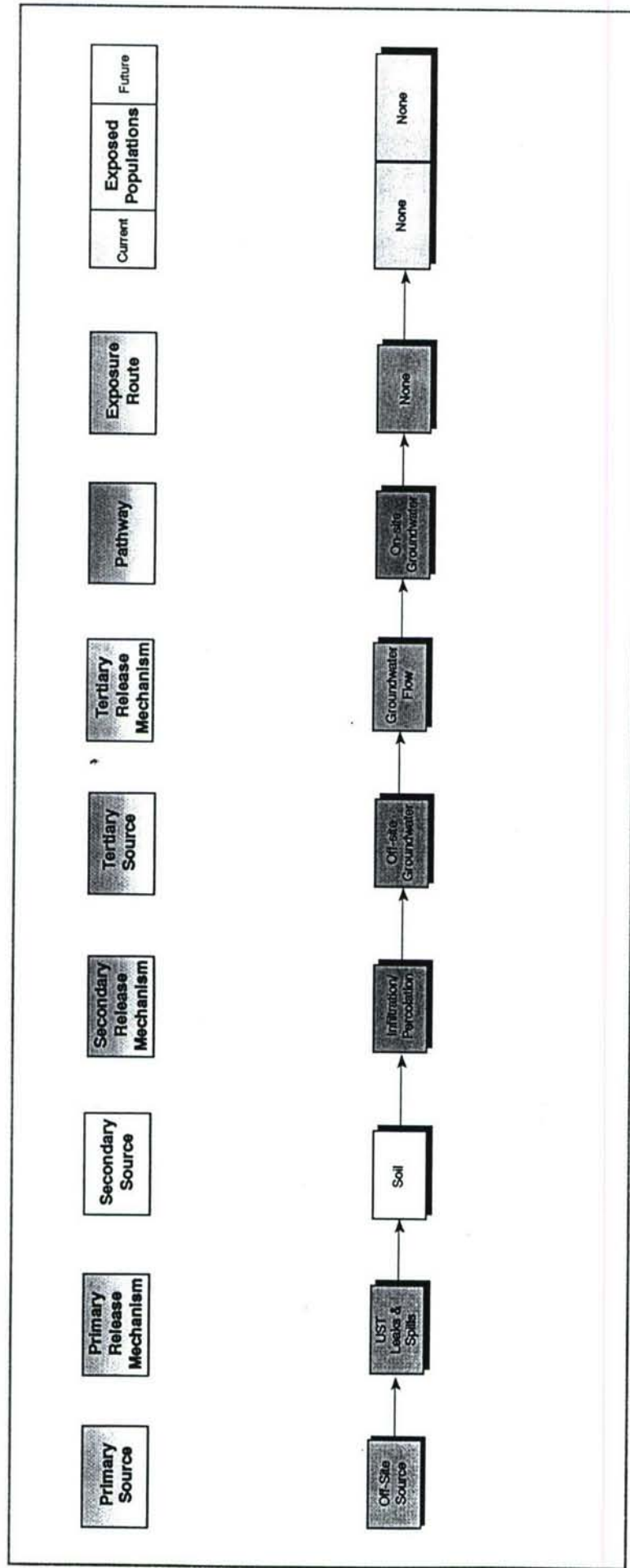
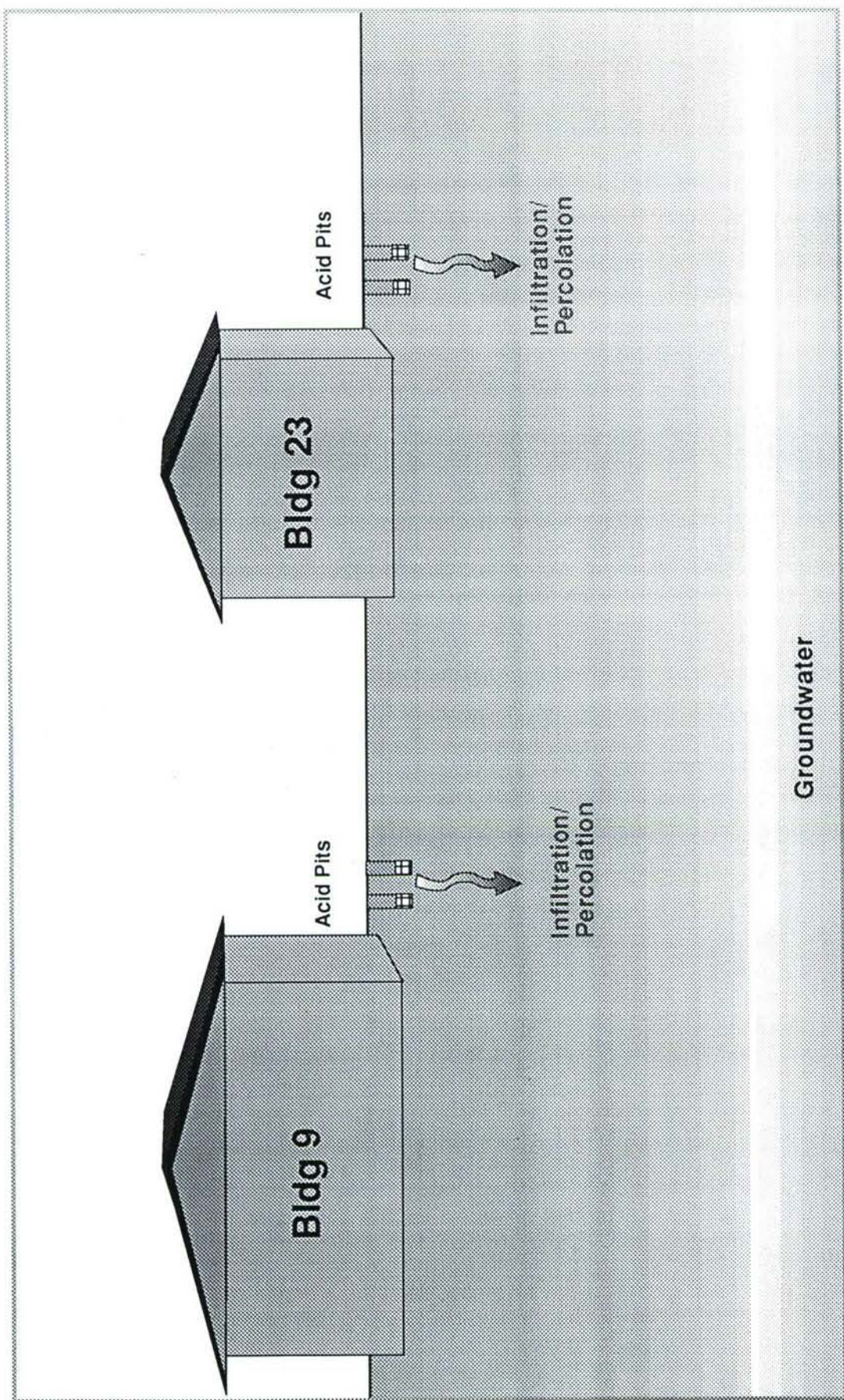


Figure E-10

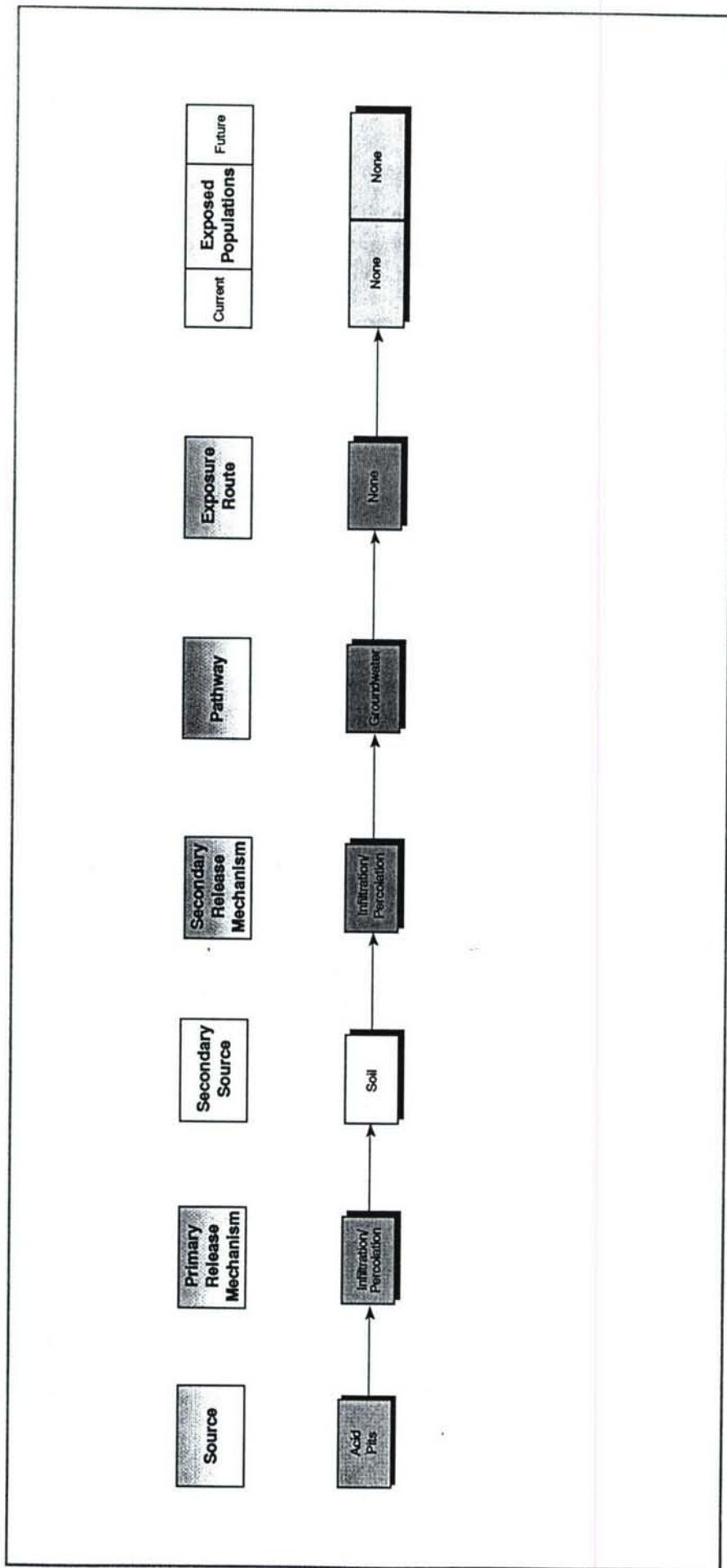




Conceptual Site Model  
Former Acid Pits (OU6)

Remedial Investigation  
Report, Cameron Station  
(February 1993)

Figure E-11

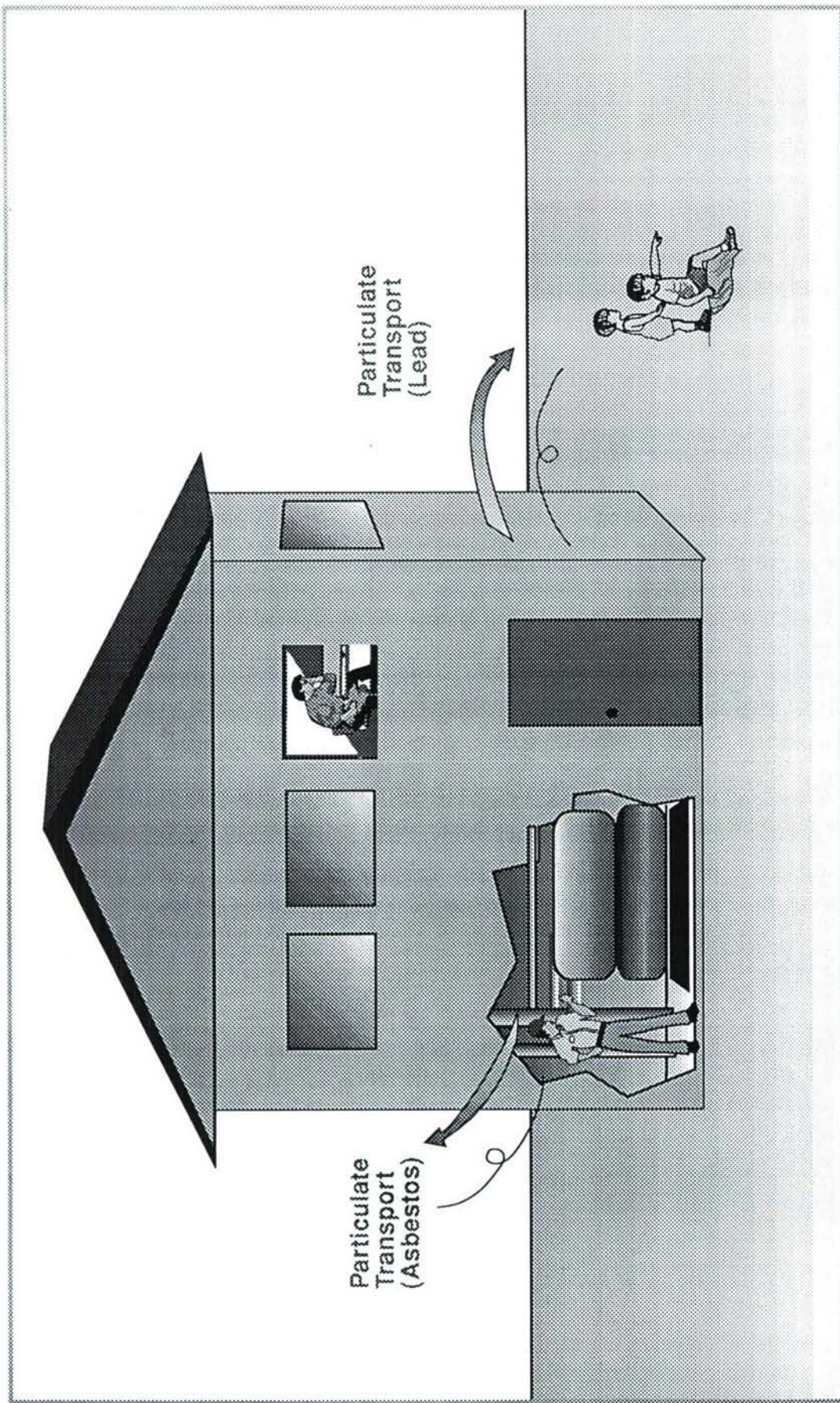


Remedial Investigation  
Report, Cameron Station  
(February 1993)

Conceptual Site Model  
Former Acid Pits (OU6)

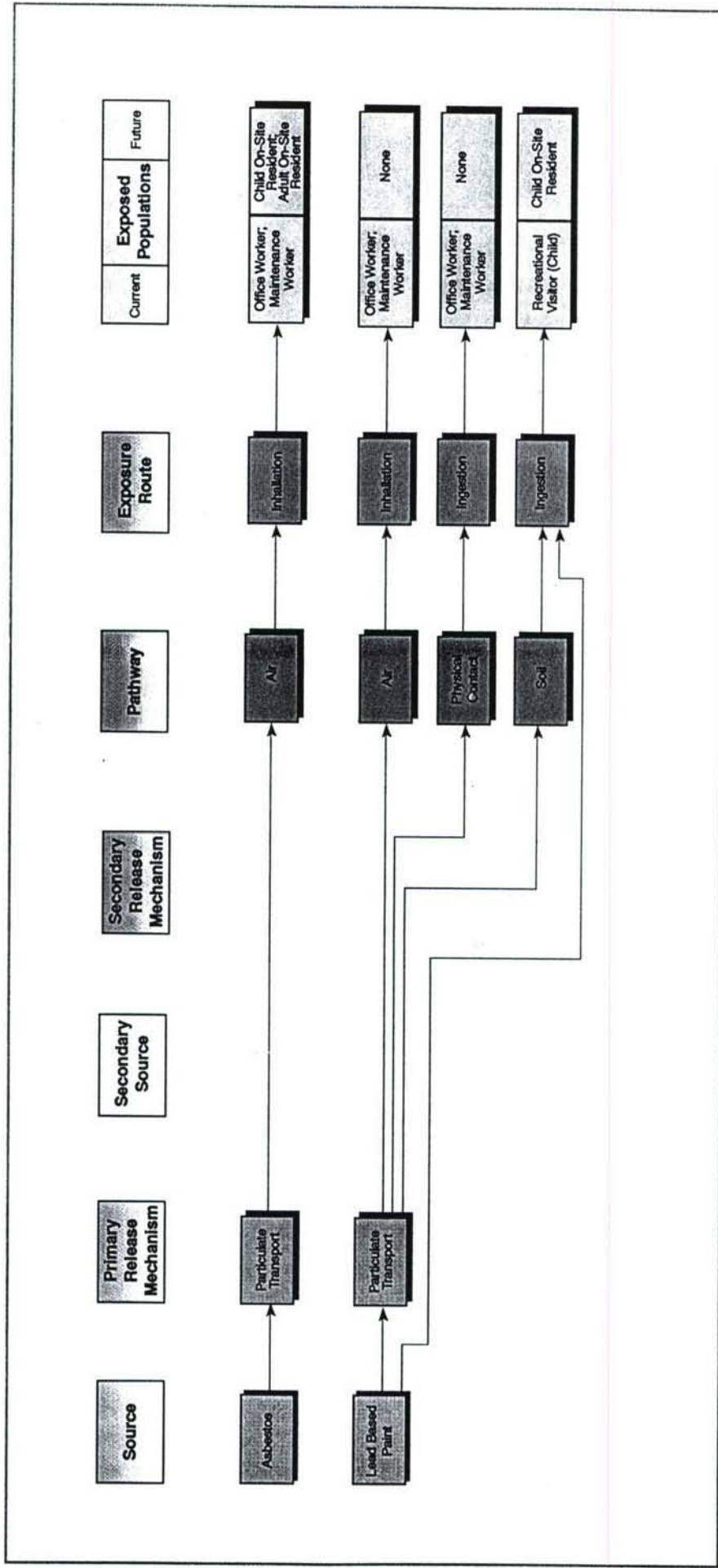
Figure E-12





Remedial Investigation  
Report, Cameron Station  
(February 1993)

Conceptual Site Model  
Asbestos and Lead  
Based Paint (OU7)

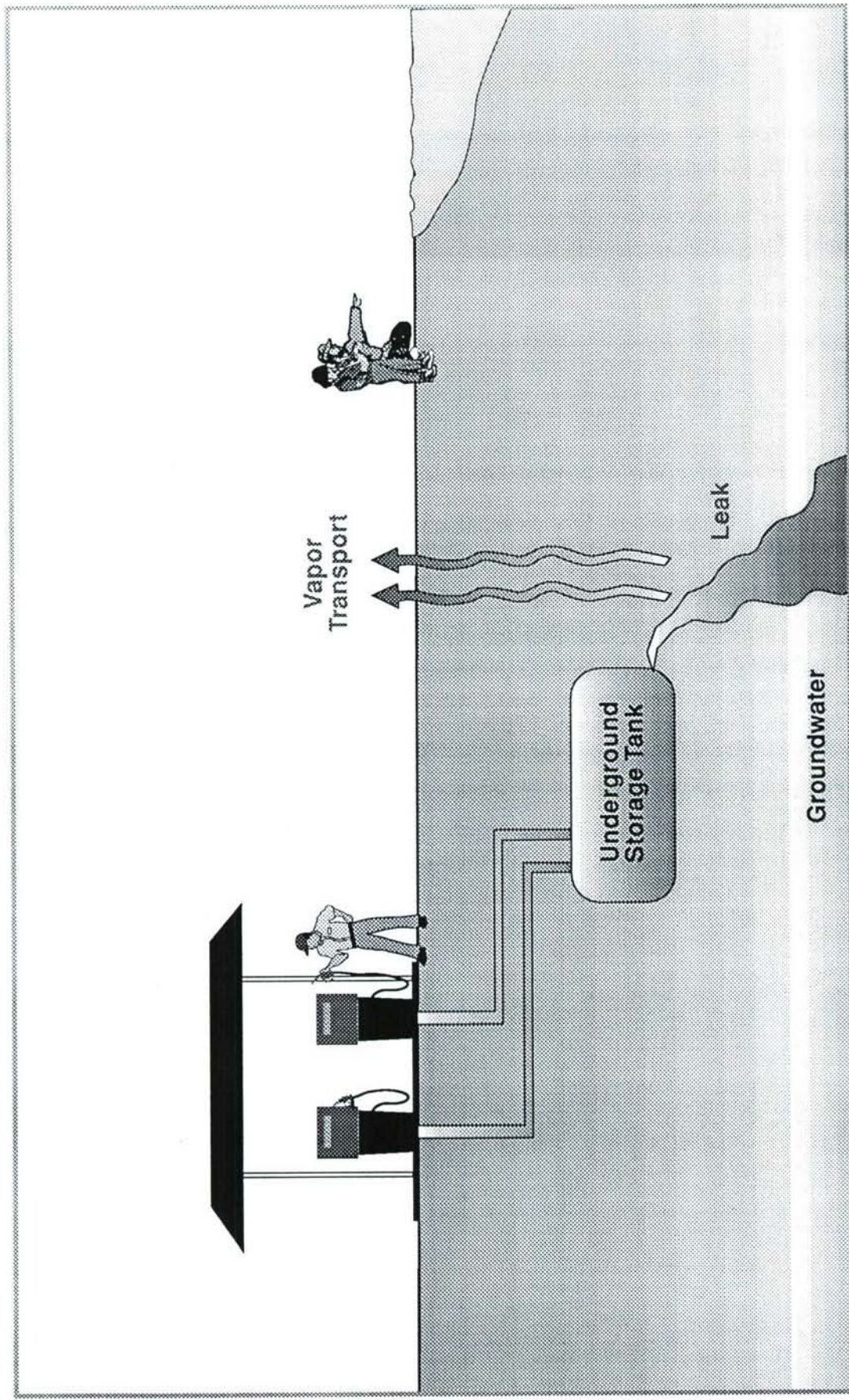


Remedial Investigation  
Report, Cameron Station  
(February 1993)

Conceptual Site Model  
Asbestos & Lead  
Based Paint (OU7)

Figure E-14

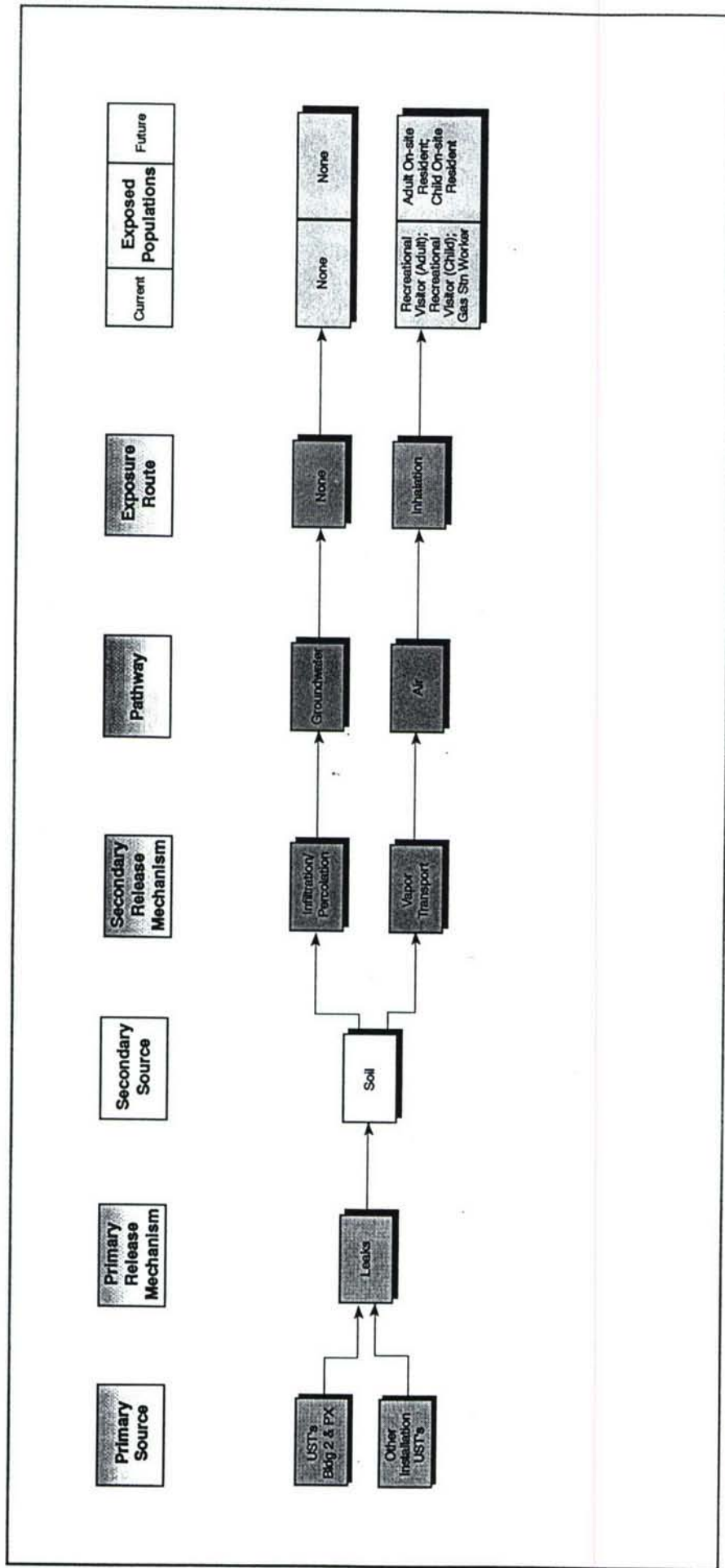




Remedial Investigation  
Report, Cameron Station  
(February 1993)

Conceptual Site Model  
UST's at Bldg 2 and PX (OU8)  
and Other Installation UST's (OU12)

Figure E-15



Remedial Investigation  
Report, Cameron Station  
(February 1993)

Conceptual Site Model  
UST's at Bldg 2 & PX (OU8)  
and Other Installation UST's (OU12)

Figure E-16



**This page intentionally left blank.**

# APPENDIX F

---

## ► OTHER ANCILLARY BCP MATERIALS ◀

- Sample RAB Fact Sheet
- Table F-1 BCP Distribution List
- Table F-2 DPW In-House Asbestos Abatement
- Natural Resources Correspondence
- Applicable or Relevant and Appropriate Requirements
- Figures F-2 through F-10, OUs at Cameron Station
- Summary of Environmental Justice Issues at Cameron Station
- Figures F-11 and F-12, Poverty and Minority Distribution Surrounding Cameron Station
- Figure 3-3, Suitable Property for Transfer



**This page intentionally left blank.**

**► CAMERON STATION SAMPLE FACT  
SHEETS FOR RAB ◄**



**This page intentionally left blank.**

# CAMERON STATION

## SAMPLE FACT SHEETS FOR RAB

### CAMERON STATION BACKGROUND INFORMATION

1. Cameron Station is a 164.5-acre U.S. Army installation located in the City of Alexandria. The post is located off of Duke Street near the Duke Street and Interstate 395 interchange. Mixed commercial and industrial developments border Cameron Station along its western and northwestern sections. Duke Street borders the installation to the northeast. Holmes Run and Backlick Run delineate Cameron Station's eastern and southern boundaries.
2. Cameron Station is being closed as a result of the Base Realignment and Closure Act of 1988. This law requires the U.S. Army to close Cameron Station by 30 September 1995. Cameron Station is a sub-installation of the Fort Myer Military Community. The Fort Myer Military Community also consists of Fort Myer and Fort McNair. Fort Myer falls within the Military District of Washington, a Major Command for the U.S. Army.
3. The installation's primary mission has been to provide support to the Commanding General of the Military District of Washington. The principal operations at Cameron Station include administration, commissary (the equivalent of a grocery store) and the PX (the equivalent of a department store). Although the post has nine warehouse structures, Cameron Station is primarily an administration facility. Most of the warehouse space has been converted to office space or commissary and PX facilities. Space is provided for many tenant organizations, including the Defense Department's Defense Logistics Agency, the largest tenant on Cameron Station. Cameron Station employs approximately 4,000 people, the majority of which will move with the Defense Logistics Agency to their new headquarters being constructed at Fort Belvoir.
4. The land for Cameron Station was acquired in the early 1940s. The station was originally known as the Washington Quartermaster Depot operated by the Quartermaster General. Quartermaster responsibilities included the operation of Commissaries and Post Exchanges. In 1962 the Defense Logistics Agency was established and most of the warehouse space was converted to office space.
5. Cameron Station has not been associated with weapons manufacture (chemical or otherwise), or heavy industrial activity. Recently the U.S. Environmental Protection Agency (USEPA) scored Cameron Station to determine its eligibility for inclusion on the National Priorities List also known as Superfund. This list identifies very contaminated sites in the United States. It was determined that Cameron Station was not eligible for the National Priorities List.



# CAMERON STATION

## SAMPLE FACT SHEETS FOR RAB

Continued

6. Beginning in 1990, Cameron Station underwent extensive investigations to determine the extent of any environmental contamination. These investigations continued for three years until the end of 1993. Since that time, the U.S. Army has been working with the USEPA and the Virginia Department of Environmental Quality to determine the appropriate cleanup standards and actions.
7. The U.S. Army worked closely with the Task Force to Monitor the Closing of Cameron Station to develop a reuse plan for the property once it was transferred from the U.S. Army. The Alexandria City Council's approval of the reuse plan became the zoning directive and a part of the Landmark-Van Dorn Small Area Plan. The plan will allow for:

Residential - 70 acres

Commercial Office and Retail Infrastructure - 28 acres

Public Open Space - 50.5 acres.

The Alexandria City Council approved limiting the residential acreage to 1,910 dwelling units. These units could be composed of any mix of townhomes, condominiums, rental, garden type, mid-rise, and limited high rise apartment buildings. The commercial acreage could build out up to 480,000 square feet with the Eisenhower Avenue connector.

# CAMERON STATION SAMPLE FACT SHEETS FOR RAB

Continued

## RESTORATION ADVISORY BOARDS

The following questions and responses are to help you understand more about Restoration Advisory Boards (RABs):

### 1. What is the Restoration Advisory Board (RAB)?

The RAB is an advisory board consisting of members of the community affected by the closure of Cameron Station and representatives from Cameron Station, Virginia Department of Environmental Quality, the U.S. Environmental Protection Agency and the City of Alexandria.

### 2. What is the purpose of the RAB?

The purpose of the RAB is to promote the discussion and exchange of information regarding environmental restoration issues at Cameron Station between Cameron Station, the regulatory agencies and the community. The RAB is a mechanism for notifying the community of remedial (cleanup) actions taking place at Cameron Station. The RAB is not a voting body or a decision making body but an opportunity for information exchange with the community. This allows the community to understand what environmental cleanup procedures are being taken at Cameron Station and how it affects the surrounding area and Reuse Plan.

### 3. What does a RAB member do?

The RAB member is expected to serve for a term of two years. The RAB member should be prepared to review and evaluate documents, relay opinions and views of the community group they represent, and attend scheduled meetings.

### 4. Who is on the RAB?

The RAB will consist of two co-chairs. One will be a representative from Cameron Station and the other will be a community representative. The other members of the RAB will include a representative from the City of Alexandria, Virginia Department of Environmental Quality, the U.S. Environmental Protection Agency, the DOD Base Transition Coordinator and 10-12 community members.



# CAMERON STATION

## SAMPLE FACT SHEETS FOR RAB

Continued

**5. How was the selection panel for the RAB chosen?**

The Task Force to Monitor the Closing of Cameron Station, a community organization developed to determine a reuse plan for Cameron Station, recommended three participants for the RAB. One participant is an Alexandria City employee and the remaining two members are from the community. The two community members selected an additional community member to form the RAB selection panel. All members of the selection panel are from the community; there are no members on the selection panel from the regulatory agencies or the U.S. Army.

**6. Who chairs the RAB?**

The RAB is co-chaired by a representative from the Army at Cameron Station and a representative from the community.

**7. How are the community members chosen?**

The selection panel will develop criteria for selecting community RAB members, review applications and nominate community members for the RAB. This list is then given to the Post Commander of Cameron Station for review. The Commander must accept the list unless there is not an accurate representation of the community. For example, if the community member list consisted of 10 developers, then the Post Commander would recommend that the selection panel re-evaluate the list to ensure that it is a good representation of the community. This is the only reason the Post Commander can reject the list submitted by the selection panel.

**8. How is the community co-chair chosen?**

Once the selection of the community RAB members is complete, then these members will nominate and select the community co-chair from the community RAB members.

**9. What is the format for the RAB meetings?**

The RAB meetings will be held at a location in the vicinity of Cameron Station during the evenings to allow for public attendance. The RAB will meet to discuss issues on the agenda for that meeting. Once this discussion has taken place and the meeting is complete, the floor will be opened for public comments. There will be a sign up sheet at each meeting to allow for any interested citizens to speak after the RAB members have addressed all items on the agenda.

# CAMERON STATION SAMPLE FACT SHEETS FOR RAB

Continued

**10. Who sets the agenda for the RAB?**

The co-chairs develop the agenda for the RAB meetings. The agenda will then be sent to the remaining RAB members for comment and review. If a citizen would like an environmental issue to be addressed during the RAB meeting as part of the agenda, this person can contact a RAB member up to one week prior to the RAB meeting and request that the issue be discussed.

**11. How often will the RAB meet?**

Once the community members have been selected for the RAB, it is expected that meetings will be held on a monthly basis for three months to allow for updating RAB members on the past environmental activities at Cameron Station prior to the formation of the RAB. After this time, the meetings will probably be quarterly, although this is subject to the preferences of the RAB.

**12. How will I know when the RAB will meet?**

RAB notices will be published in the Washington Post and the Alexandria Journal. In addition, a mailing list will be established for those interested in receiving minutes and notices of the RAB meetings. There will be a sign up sheet for inclusion on the mailing list at each RAB meeting.

**13. Why wasn't the RAB formed earlier?**

Restoration Advisory Boards have been developed as part of President Clinton's Fast Track Cleanup Program. USEPA and DOD developed final guidance for the RABs in April 1994. This is a new program with a new approach to community involvement. Cameron Station was mandated for closure as part of the Base Realignment and Closure Act of 1988; the environmental restoration process is well advanced. The RABs are a new way of doing business for the U.S. Army, and even though many of the restoration decisions have been made, RABs will provide an opportunity for the community to become informed of and provide input to the progress on environmental studies and cleanup at Cameron Station.

**14. How can I have input if I am not a RAB member?**

There are several ways to have input to the RAB if you are not a RAB member. One method is to contact a community RAB member and discuss your views on the environmental restoration taking place at Cameron Station and request that these views be voiced to the RAB. Another method is to sign up to speak at the end of the RAB meeting when public comments are requested or to write a question or concern on the sign up sheet to be addressed by the RAB.



## **CAMERON STATION SAMPLE FACT SHEETS FOR RAB**

**Continued**

**15. Where can I find information on the environmental restoration at Cameron Station?**

Environmental studies and documents for Cameron Station are located at the Alexandria Library - Burke Branch located at 4701 Seminary Road, Alexandria, Virginia. In addition, information can be obtained by contacting Ms. Kelly J. Koontz, the BRAC Environmental Coordinator, Cameron Station, phone (703) 274-3806.

**► TABLE F-1  
BCP DISTRIBUTION LIST ◀**



**This page intentionally left blank.**

**TABLE F-1. BCP DISTRIBUTION LIST**

Name	Title	Address
Kelly Koontz	BRAC Environmental Coordinator, Military District of Washington	
Gary Thomas	Colonel, U.S. Army	Deputy Chief of Staff for Engineering and Housing Fort McNair, Building 42 Washington, DC 20319-5050
Robert H. Candido	Lt. Colonel, U.S. Army	Director of Public Works Fort Myer, Building 305 Fort Myer, VA 22211-5050
Weldon E. Keyton	Facilities Engineer	Cameron Station Alexandria, VA 22304-5050
August J. Fucci	Lt. Colonel, U.S. Army	Post Commander Cameron Station, Building 15 Alexandria, VA 22304-5050
Scott Deibler	Colonel, U.S. Army	Garrison Commander Fort Myer, Building 59 Fort Myer, VA 22211-5050
Edna Barber	Chief, Environmental Division	Fort Myer, Building 313 Fort Myer, VA 22211-5050
Charley Banks	Remedial Project Manager	VDEQ, Waste Division 4900 Cox Road Glen Allen, VA 23060
Mark Stephens	Remedial Project Manager	USEPA Region III 841 Chestnut Street Philadelphia, PA 19107
Connie Candelaria	Base Transition Coordinator	Cameron Station, Room 7 Alexandria, VA 22304-5050
William Skrabak	Manager, Office of Environmental Quality	City of Alexandria 517 North St. Asaph Street Alexandria, VA 22314
Gerry Bresee	Realty Specialist	USACE Real Estate Division Baltimore, MD
Chris J. Larsen	Captain, U.S. Army	BRAC-ER Program Manager Baltimore, MD
Alan Freed	Project Manager, U.S. Army Environmental Center (USAEC)	USAEC, Attn: SFIM-AEC Building E4480 Aberdeen Proving Ground, MD 21010-5401
Susan Smullen	Public Affairs Officer, Military District of Washington	MDW PAO Building 42, Fort McNair Washington, D.C. 20319-5050
Captain Dolan	Environmental Law Attorney, Judge Advocate General's Office, Military District of Washington	MDW, Attn: SSA Building 32, Fort McNair Washington, D.C. 20319-5050
Charlotte Rodriguez	Program Analyst, Military District of Washington	DCSEH, Attn: ANRO Building 42, Fort McNair Washington, D.C. 20319-5050



**This page intentionally left blank.**

**► TABLE F-2  
DPW IN-HOUSE ASBESTOS ABATEMENT ◀**



**This page intentionally left blank.**

**TABLE F-2. DPW IN-HOUSE ASBESTOS ABATEMENT**

Rev. 1-Nov-94

Building Number	Bay Number	Date	Area	Work Performed	Identified in W/C Survey	Final Inspection Date	Percent Complete
1	Bay #1	10-11 Sept 94	Attic areas	Encapsulation	No		100%
	Bay #2	10-11 Sept 94	Attic areas	Encapsulation	No		100%
	Bay #3	13 Sept 94		Encapsulation	No		100%
	Bay #4	13 Sept 94	Attic areas	Encapsulation	Yes (3)		100%
	Bay #5	20 Sept 94 21 Sept 94	Mechanical room Attic Area	Encapsulation	Yes (2) Yes (3)		100%
	Bay #6	4 Nov 94	Attic areas	Encapsulation	Yes (3)		100%
2	Bay #1	13 Sept 94 13 Sept 94	Boiler room Attic areas	Encapsulation Encapsulation	Yes (3) Yes (2)		100%
	Bay #2	15 Sept 94	Attic areas	Encapsulation	Yes (2)		100%
	Bay #3	15 Sept 94		Encapsulation	No		100%
	Bay #4	10-11 Sept 94 7 Aug 94	Attic areas Mechanical room	Encapsulation	Yes Yes (3)		100%
	Bay #5	15 Sept 94		Encapsulation	No		100%
	Bay #6	15 Sept 94	Attic areas	Encapsulation	Yes (2)		100%
3	Bay #1	23-24 Oct 93 9 Aug 94 11 Aug 94 5 Sept 94	General Debris Areas	Setup Encapsulation Encapsulation Encapsulation	No	NA	100%
	Bay #2	21 Aug 93 24-25 Jul 93	Entire Bay General Debris Areas	Final Inspect. Removal	Yes (2)	21 Aug 93 25 Jul	100%
	Bay #3	21 Aug 93 10-11 Apr 93 12-13 Jun 93 26-27 Jun 10 Jul 11 Jul	Entire Bay Expansion Loops AHU #16 AHU #15 AHU #17 AHU #17	Final Inspect. Setup Removal Removal Setup Removal	No	21 Aug 93 NA 13 Jun 93 27 Jun 93 NA 11 Jul 93	100%
	Bay #4	21 Aug 93 10-11 Apr 93 1-2 May 93 1-2 May 93 8-9 May 93 15-16 May 93 12-13 Jun 93 14-15 Aug 93	Entire Bay Expansion Loops AHU #11 Expansion Loops AHU #10 AHU #10 AHU #8 General Debris Areas	Final Inspect. Setup Removal Removal Setup Removal Removal Removal	No	21 Aug 93 NA 2 May 93 2 May 93 NA 15 May 93 13 Jun 93 15 Aug 93	100%
	Bay #5	21 Aug 93 17-18 Apr 93 17-18 Apr 93 24-25 Apr 93 14-15 Aug 93	Entire Bay AHU #8 AHU #6 Expansion Loops General Debris Areas	Final Inspect. Removal Removal Setup Removal	Yes (2)	21 Aug 93 17 Apr 93 18 Apr 93 NA 15 Aug 93	100%
	Bay #6	21 Aug 93 18 Aug 92 13-14 Aug 92 15 Aug 92 15-16 Aug 92	Entire Bay Mech. rm. expansion tank Gen. Debris Area #1, #2 Gen. Debris Area #1 Gen. Debris Area #2	Final Inspect. Removal Setup Removal Removal Documentation	Yes (2) Yes (2)	21 Aug 93 18 Aug 92 NA 17 Aug 92 17 Aug 92	100%



**TABLE F-2. DPW IN-HOUSE ASBESTOS ABATEMENT**

Rev. 1-Nov-94

Continued

Building Number	Bay Number	Date	Area	Work Performed	Identified in W/C Survey	Final Inspection Date	Percent Complete
4	Bay #1	21-22 Aug 93 17-18 Jul 93 23-24 Oct 93 30-31 Oct 93 6-7 Nov 93 3 Sept 94	General Debris Areas Wire Trough AHU #1&2 AHU #1 AHU #2 Throughout Bay	Setup Removal Setup Removal Removal Encapsulation	No	NA 17 Jul 93 NA 31 Oct 93 7 Nov 93	100%
	Bay #2	22-23 Aug 92 22-23 Aug 92 22-23 Aug 92 17-18 Jul 93 3 Sept 94	Expansion Loop AHU # 4, Work Area #1 AHU # 5, Work Area #2 Wire Trough Throughout Bay	Removal Removal Removal Removal Encapsulation	No	23 Aug 92 23 Aug 92 23 Aug 92 17 Jul 93	100%
	Bay #3	6 Jun 92 7 Jun 92 14-15 Jun 92 14-15 Jun 92 18-19 Jun 92 20-21 Jun 92 17-18 Jul 93 3 Sept 94	AHU # 8 AHU # 8 AHU #, Area #1 AHU #, Area #2 Catwalk Area Catwalk Area Wire Trough Throughout Bay	Setup Removal Removal Removal Setup Removal Removal Encapsulation	Yes (2)	NA 7 June 92 15 June 92 15 June 92 NA 21 Jun 92 17 Jul 93	100%
	Bay #4	20 Aug 92 17-18 Jul 93 4 Sept 93	Expansion Loop Wire Trough Throughout Bay	Removal Removal Encapsulation	Yes (2)	20 Aug 92 18 Jul 93	100%
	Bay #5	17-18 Jul 93 4 Sept 94	Wire Trough Throughout Bay	Removal Encapsulation	Yes (2)	18 Jul 93	100%
	Bay #6	17-18 Jul 93 18-19 Sept 93 18-19 Sept 93 12-13 Mar 94 6 Sept 94 21 Sept 94	Wire Trough Over Room 4D645 Over Room 4B687 Throughout Building Throughout Bay Throughout Bay	Removal Removal  Documentation Encapsulation Encapsulation	Yes (2)  Yes (3)	18 Jul 93 19 Sept 93	100%
5	Bay #1	12 Jan-3 Mar 91	General Debris Area	Removal	Yes (3)	3 Mar 91	100%
	Bay #2	17-18 Sept 94 12 Jan-3 Mar 91 27-28 Aug 94	General Debris Area Throughout Bay	Encapsulation Removal Enc. & Development	Yes (3)	3 Mar 91	100%
	Bay #3	12 Jan-3 Mar 91 27-28 Aug 94 9 Jul 91	General Debris Area Throughout Bay Mechanical Room 5B352	Removal Enc. & Development Removal	  Yes (1)	3 Mar 91 9 Jul 91	100% 100%
6	Bay #1	20-21 Aug 94 26 June 94	Attic Area Mechanical Room	Encapsulation Encapsulation	Yes (2)		100%
	Bay #2	20-21 Aug 94	Attic Area	Encapsulation	Yes (2)		100%
	Bay #3	27 Aug 94	Attic Area	Encapsulation	Yes (2)		100%
7	Bay #1	25-26 Oct 93 20-21 Aug 94 10-11 Sept 94	NCO Mechanical Room Attic Area Attic Area	Encapsulation Encapsulation Encapsulation	Yes (2) Yes (2)		100% 100% 100%
	Bay #3	30 Jan 92 30 Jan 92	Men's Restroom Women's Restroom	Glovebag Glovebag	Yes (1) Yes (1)	30 Jan 92 30 Jan 92	100% 100%

**TABLE F-2. DPW IN-HOUSE ASBESTOS ABATEMENT**

Rev. 1-Nov-94

Continued

Building Number	Bay Number	Date	Area	Work Performed	Identified in W/C Survey	Final Inspection Date	Percent Complete
8	Bay #1	19-20 Feb 93	Attic Area, north wall	Encapsulation	Yes (3)		100%
	Bay #2	26-27 Feb 94	General area	Encapsulation	No		100%
	Bay #3	26-27 Feb 94 5-6 Mar 94 12 Mar 94	General area General area Throughout Building	Encapsulation Encapsulation Documentation	No No		100%
9	Bay #1	18 June 94	Attic Area Above Door 8 Restroom Storage Area Inside Door 8	Encapsulation Encapsulation Encapsulation Encapsulation	Yes (3) Yes (3) Yes (3) Yes (2)		100%
	Bay #2	13 July 94	Throughout Bay	Inspection	No		100%
	Bay #3	4-5 June 94	Throughout Bay	Encapsulation	No		100%
	Bay #4	4-5 June 94	Throughout Bay	Encapsulation	No		100%
	Bay #5	4-5 June 94	Attic, east wall	Encapsulation	Yes (3)		100%
10	NA	26 Oct 93	Metal/Carpentry Shop	Encapsulation	Yes (3)	26 Oct 93	100%
15		7 Aug 94	Basement repr. work area 1st floor corridor		Yes (2) Yes (2)		To be completed by 1 October 1994
17	NA	4 Mar 92	Overhead, RPM Office	Emerg. Removal	Yes (2)	9 Mar 92	100%
		12 Mar 94	Attic Area, throughout	Encapsulation	Yes (2)		
		9 April 94	Attic Area, throughout	Encapsulation			
21	N/A	23-24 Apr 94	TSI, Boiler Plant	Encapsulation	Yes (2)		100%
	N/A	30 Apr-1 Jun 94	TSI, Boiler Plant	Encapsulation			
	N/A	7 May 94	TSI, Boiler Plant	Encapsulation			
	N/A	21-22 May 94	TSI, Boiler Plant	Encapsulation			
	N/A	4-5 June 94	TSI, Boiler Plant	Encapsulation			
	N/A	9-10 July 94	Exterior Oil Line Pit	Removal			
25	N/A	16 Mar 94	Food Preparation Area	Encapsulation	Yes (2)	16 Mar 94	100%
			Above ceiling, throughout	Encapsulation			100%

Scope of Work: The 31 Jan 1990 memorandum from the Department of the Army, Office of the Assistant Secretary, subject; Base Realignment and Closure Environmental Restoration Strategy indicates to "remove only friable asbestos which presents a threat to health and safety; non-friable asbestos which is encapsulated or in good repair shall be left in place and identified to the buyer per GSA agreement.

Woodward Clyde Federal Service Survey 14 November 1991  
Recommended Management Corrective Action

- (1) Immediate Action
- (2) Action as soon as possible
- (3) Planned Action

Shaded areas are completed.

\*For additional information or assistance please contact Craig George DPW Industrial Hygienist at (703) 696-2013 or Kenny Gantt, Safety Specialist at (703) 696-2012.



**This page intentionally left blank.**

► **NATURAL RESOURCES CORRESPONDENCE** ◀

**This page intentionally left blank.**





# COMMONWEALTH of VIRGINIA

Chief, Director

## Department of Historic Resources

221 Governor Street  
Richmond, Virginia 23219

TDD: (804) 786-1934  
Telephone (804) 786-3143  
FAX: (804) 225-4261

January 7, 1993

Thomas P. Jacobus, Col., U.S. Army  
Deputy Chief of Staff for Engineering and Housing  
U.S. Military District of Washington  
Washington, D.C. 20319-5050

Re: Base Realignment and Closure (BRAC), Cameron Station  
City of Alexandria  
VDHR File No. 92-0921-F

Dear Col. Jacobus:

We appreciated the opportunity to review the final revised cultural resource report for the proposed BRAC action at Cameron Station. The final documentation was prepared in August 1992 by the KFS Historic Preservation Group. Our review copy was received on November 1, 1992 and we apologize for the delay in providing these comments.

The additional research reflected in the documentation makes the report consistent with the Secretary of Interior's Standards for Archaeology and Historic Preservation (48 FR 44716 - 44742). The historic maps and descriptions of the area prior to 1942 support a reasonable interpretation that most of Cameron Station constituted a wetland area with only limited habitation potential. Further, the detailed topographic map illustrated as Figure 5 in the report supports an interpretation that any habitable upland areas that may have been present at Cameron Station were mined as the source of fill placed into the wetlands. Given the extensive fill present at Cameron Station, any efforts to formally identify archaeological sites must be based upon a reasonable expectation that such resources are present. We concur therefore with your consultant's assessment that Cameron Station is unlikely to contain significant archaeological resources.

As stated in our letter of June 11, 1992, our agency previously concurred with your consultant's recommendation that the architectural resources of Cameron Station be considered not eligible for listing on the National Register of Historic Places. Since significant archaeological resources are unlikely to be present at Cameron Station, we concur with your opinion that the proposed BRAC action will have no effect on historic properties.

If you have any questions concerning our comments, please feel free to contact me or Antony Opperman of our staff.

Sincerely,

Eric J. Larson  
Project Review Section Supervisor

cc: Mary Shipo, U.S. Army Corps of Engineers  
Patricia J. Crossley, Alexandria Archaeology



# United States Department of the Interior



## FISH AND WILDLIFE SERVICE

Chesapeake Bay Field Office  
1825 Virginia Street  
Annapolis, Maryland 21401  
(410) 269-5448

September 20, 1993

Mr. James Martin  
Environmental Scientist  
CH2MHILL  
P.O. Box 4400  
Reston, Virginia 22090-1483

Re: Concurrence of no RTE species at  
Cameron Station - Alexandria, Virginia

Dear Mr. Martin:

This responds to your August 3, 1993, request for information on the presence of species which are Federally listed or proposed for listing as endangered or threatened within the above referenced project area. We have reviewed the information you enclosed and are providing comments in accordance with Section 7 of the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.).

Except for occasional transient individuals, no Federally-listed or proposed endangered or threatened species are known to exist in the project impact area. Therefore, no biological assessment or further Section 7 consultation is required with the Fish and Wildlife Service. Should project plans change, or if additional information on the distribution of listed or proposed species becomes available, this determination may be reconsidered.

This response relates only to endangered species under our jurisdiction. It does not address other Fish and Wildlife Service concerns under the Fish and Wildlife Coordination Act or other legislation.

Thank you for your interest in endangered species. If you have any questions or need further assistance, please contact Andy Moser or Leslie Pitt at (410) 269-5448.

Sincerely,

John P. Wolflin  
Field Supervisor  
Chesapeake Bay Field Office

**► APPLICABLE OR RELEVANT AND  
APPROPRIATE REQUIREMENTS ◀**



**This page intentionally left blank.**

**POTENTIAL FEDERAL CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND  
APPROPRIATE REQUIREMENTS**

Standard, Requirement, Criteria, or Limitation	Description	Applicable/ Relevant and Appropriate	Comment
<b>Clean Air Act (CAA) 42 USC Section 7409-7601(a) - See below for specific citations</b>			
National Primary and Secondary Ambient Air Quality Standards (NAAQS) (40 CFR Part 50)	Establishes standards for ambient air quality to protect public health and welfare from sulfur dioxide, particulate matter, carbon monoxide, ozone nitrogen dioxide and lead.	Yes/No	Remediation may involve activities that create emissions. For excavation and grading, fugitive dust emissions must not exceed NAAQS requirements for particulate matter.
Regulations on Standards of Performance for New Stationary Sources (40 CFR Part 60)	Establishes standards for stationary sources of air pollution including incinerators (Subpart E).	Yes/No	Remediation involving incineration must meet the applicable standards.
Regulations on National Emissions Standards for Hazardous Air Pollutants (40 CFR Part 61)	Establishes standards for various hazardous air pollutants and sources.	No/No	Applies primarily to major industry sources.
<b>Safe Drinking Water Act (40 USC Section 300) - See below for specific citations</b>			
National Primary Drinking Water Standards (40 CFR Part 141)	Establishes health-based standards for public water systems (maximum contaminant levels, or MCLs). Also establishes drinking water quality goals set at levels of no known or anticipated adverse health effects with an adequate margin of safety (maximum contaminant level goals, or MCLGs).	No/Yes	Shallow groundwater at Cameron Station is not presently being used as a source of drinking water. It is not likely that it will serve as a source of drinking water in the future. The MCLs may be relevant and appropriate for groundwater quality.

# **POTENTIAL FEDERAL CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS**

Standard, Requirement, Criteria, or Limitation	Description	Applicable/ Relevant and Appropriate	Comment
<b>Resource Conservation and Recovery Act (RCRA) (as amended by Hazardous and Solid Waste Amendments of 1984 - HSWA) (42 USC 6901) - See below for specific citations</b>			
Identification and listing of Hazardous Waste (40 CFR Part 261)	Defines those solid wastes that are subject to regulation as hazardous waste under 40 CFR Parts 262-265 and Parts 124, 270, and 271.	No/ Yes	Listed wastes have not been identified as having been disposed of at the site. It appears that other materials disposed of at the site may be characteristic wastes.
Land Disposal Restrictions (LDRs) (40 CFR Part 268)	Establishes restrictions for land disposal of listed and characteristic waste.	Yes/No	LDRs would be applicable to any groundwater treatment residuals and contaminated soils.
National Secondary Drinking Water Standards (40 CFR Part 143)	Establishes welfare-based standards for public water systems (secondary maximum contaminant levels of SMCLs).	No/Yes	SMCLs are relevant and appropriate for tap water quality. They can be used as guidelines or goals for other water sources but are not ARARs in the strict definition.
<b>Federal Water Pollution Control Act (Clean Water Act - CWA) (33 USC Section 1251-1376) - See below for specific citations</b>			
Water Quality Criteria (WQC) (40 CFR Part 131 Quality Criteria for Water, 1976, 1980, 1986)	Sets criteria for water quality based on toxicity to aquatic organisms and human health.	No/No	Holmes Run and Backlick Run are too shallow to support fish.
Toxic Pollutant Effluent Standards (40 CFR Part 129)	Establishes effluent standards or prohibitions for certain toxic pollutants: aldrin, dieldrin, DDT, endrin, toxaphene, benzidine, and polychlorinated biphenyls (PCBs).	No/No	None of these pollutants was detected in groundwater or surface water.
Virginia State Water Control Law (Code of Virginia, Title 62-1, Chapter 3.1)	Establishes permit requirements for the disposal of industrial water and oil into state waters.	Yes/No	Remediation activities of Cameron Station may generate residual wastes requiring treatment and disposal.
Virginia Miscellaneous Laws Relating to Water Pollution (Code of Virginia, Title 62.1, Chapter 20)	Prohibits the dumping of trash and garbage into state waters.	Yes/No	Garbage and debris generated during remedial activities may not be dumped into any surface water.



**POTENTIAL FEDERAL CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND  
APPROPRIATE REQUIREMENTS**

Standard, Requirement, Criteria, or Limitation	Description	Applicable/ Relevant and Appropriate	Comment
<b>Federal Water Pollution Control Act (Clean Water Act - CWA) (33 USC Section 1251-1376) - See below for specific citations (Continued)</b>			
Virginia Groundwater Act (Code of Virginia, Title 62.1, Chapter 3.6)	Establishes permit requirements for the withdrawal of groundwater.	Yes/No	Remediation activities involving pump and treat techniques may require a permit if groundwater withdrawal rates exceed 300,000 gallons per month.
<b>Virginia Water Pollution Control Regulations - See below for specific citations</b>			
Virginia Pollutant Discharge Elimination System (VPDES) (VR 680-14-01)	Establishes permit requirements for point source discharges into state waters.	Yes/No	During remediation activities, a VPDES permit may be required if treated groundwater effluent is discharged to surface water.
Virginia Pollutant Abatement (VPA) Permit Program (VR 680-14-01)	Establishes permit requirements for nonpoint source discharges into state waters.	Yes/No	Will be applicable during remediation activities if polluted runoff water enters surface waters.
Policy for Nutrient Enriched Waters (VR 680-14-02)	This policy provides for the control of discharges of nutrients from point sources affecting state waters that have been designated "nutrient enriched waters" in VR 680-21-07-3.	No/No	Cameron Run is not designated as "nutrient enriched waters".
Toxics Management (VR 680-14-03)	Establishes monitoring requirements for toxic pollutants in surface waters discharged from all sources holding VPDES permits.	No/No	Applicable to certain industries, as specified by SIC codes, and publicly owned treatment works (POTWs).

**POTENTIAL FEDERAL CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND  
APPROPRIATE REQUIREMENTS**

Standard, Requirement, Criteria, or Limitation	Description	Applicable/ Relevant and Appropriate	Comment
<b>Virginia Water Quality Standards (VR 680-21-00) - See below for specific citations</b>			
Surface Water Standards with General, State-wide Application (VR 680-21-01)	Establishes freshwater standards for mercury, radiological quality, tributylene, chlorine, and fecal coliform bacteria. Establishes standards for surface public water supplies and water quality criteria for surface water. Standard also addresses anti-degradation of surface waters.	No/Yes	Will be relevant and appropriate if contaminated groundwater discharges into Cameron Run.
Groundwater Standards VR 680-21-04	Establishes groundwater standards for metals, petroleum hydrocarbons, chlorinated hydrocarbon insecticides and radioactivity. These standards apply to all groundwaters occurring at and below the upper-most seasonal limits of the water table. Standard establishes groundwater criteria by physiographic province. Standard also addresses anti-degradation of groundwater.	Yes/No	These standards are applicable to all shallow and deep aquifers at Cameron Station.
Virginia Department of Health Waterworks Regulations (VR 355-18-000)	Establishes primary and secondary maximum contaminant (drinking water standards) levels for inorganic chemicals, organic chemicals, physical quality, and radiological quality. Also establishes monitoring requirements for unregulated organic contaminants.	No/Yes	Groundwater aquifers at Cameron Station do not serve as sources of drinking water and are unlikely to do so in the future. May serve as a potential backup source for drinking water.



**POTENTIAL FEDERAL CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND  
APPROPRIATE REQUIREMENTS**

Standard, Requirement, Criteria, or Limitation	Description	Applicable/ Relevant and Appropriate	Comment
<b>Virginia Water Quality Standards (VR 680-21-00) - See below for specific citations (Continued)</b>			
Virginia Air Pollution Control Laws (Code of Virginia, Title 10.1)	Establishes the framework for selecting the State Air Pollution Control Board.	No/No	Administrative requirement.
Virginia Environmental Quality Act (Code of Virginia, Title 10.1)	Establishes the framework for the operations of the Council on the Environment.	No/No	Administrative requirement.
Virginia Motor Vehicle Emissions Control Law (Code of Virginia, Title 46.2)	Provides the policies and procedures for the emissions inspection program.	No/No	Administrative requirement.
<b>Virginia Air Pollution Control Regulations (VR 120-01 through 120-08) - See below for specific citations</b>			
Ambient Air Quality Standards (VR 120-03-01)	Establishes ambient air quality standards for sulfur dioxide, carbon monoxide, ozone, particulate matter (PM <sub>10</sub> ), nitrogen dioxide, and lead.	No/Yes	These standards are applicable to ambient air concentrations. As such, they are not applicable to stationary sources.
Emission Standards for Visible Emissions and Fugitive Dust/Emissions (Rule 4-1 and 5-1)	Establishes standards for visible emissions and fugitive dust/emissions.	Yes/No	Remedial activities which generate visible emissions or fugitive dust/emissions will be required to meet these standards.
Emission Standards for Odor (Rule 4-2 and 5-2)	Prohibits the discharge of objectionable odor from any facility.	Yes/No	Odors objectionable to individuals of ordinary sensibility will not be allowed during remedial activities.



**POTENTIAL FEDERAL CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND  
APPROPRIATE REQUIREMENTS**

Standard, Requirement, Criteria, or Limitation	Description	Applicable/ Relevant and Appropriate	Comment
<b>Virginia Air Pollution Control Regulations (VR 120-01 through 120-08) - See below for specific citations (Continued)</b>			
Emission Standards for Toxic Pollutants (Rule 4-3 and 5-3)	Establishes guidelines for significant ambient air concentrations. Significant concentrations are one-hour concentrations in excess of 1/40 of the TLV-C, 1/40 of TLV-STEL or 1/20 of the TLV-TWA. Significant concentrations are also annual concentrations in excess of 1/500 of the TLV-TWA.	Yes/No	During remedial activities, disturbance of underlying soils may release volatile compounds into the air.
Emission Standards for Incinerations (Rule 4-7)	Establishes emission standards for incinerators.	Yes/No	Remedial activities which involve the use of incinerators will be required to meet these standards.
Standards of Performance for Stationary Sources (Rule 5-4 and 5-5)	Requires the Best Available Control Technology (BACT) be used to control air pollution.	Yes/No	Remediation technologies which have the potential to generate air pollution will be required to use BACT.
National Historic Preservation Act (16 USC Section 470) (40 CFR Section 6301(b)) (36 CFR Part 800)	Requires federal agencies to take account of the effect of any federally-assisted undertaking or licensing on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register of Historic Places.	No/No	The remedies should not affect any current district, site, building, structure, or object listed on or eligible for the National Register.

**POTENTIAL FEDERAL CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND  
APPROPRIATE REQUIREMENTS**

Standard, Requirement, Criteria, or Limitation	Description	Applicable/ Relevant and Appropriate	Comment
<b>Virginia Air Pollution Control Regulations (VR 120-01 through 120-08) - See below for specific citations (Continued)</b>			
Archeological and Historic Preservation Act (16 USC Section 469) (40 CFR Section 6.301(c))	Establishes procedures to provide for preservation of historical and archeological data which might be destroyed through alteration of terrain as a result of a federal construction project or a federally licensed activity or program.	No/No	The remedies should not affect current historical or archeological data.
Historic Sites, Buildings, and Antiquities Act (16 USC Section 461-467) (40 CFR Section 6.201(a))	Requires federal agencies to consider the existence and location of landmarks on the National Registry of Natural Landmarks to avoid undesirable impacts on such landmarks.	No/No	The remedies would not affect any current natural landmarks.
Fish and Wildlife Coordination Act (16 USC Section 661-666)	Requires consultation when a federal department or agency proposes or authorizes any modification of a stream or other water body and adequate provision for protection of fish and wildlife resources.	No/No	Backlick Run and Holmes Run are too shallow to support fish.
Endangered Species Act (16 USC 1531) (50 CFR Part 200) (50 CFR Part 402)	Requires action to conserve endangered species and critical habitats upon which endangered species depend, and includes consultations with Department of the Interior.	No/No	No threatened or endangered species or critical habitats were identified on or near the site. Waterfowl are year-long inhabitants of Cameron Lake.



**POTENTIAL FEDERAL CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND  
APPROPRIATE REQUIREMENTS**

Standard, Requirement, Criteria, or Limitation	Description	Applicable/ Relevant and Appropriate	Comment
<b>Federal Water Pollution Control Act (CWA) - See below for specific citation</b>			
Dredge or Fill Requirements (Section 404) (40 CFR Parts 230, 231)	Requires permits for discharge of dredged or fill material into navigable waters.	No/No	No alternative is anticipated which would discharge dredge or fill material into navigable waters.
<b>Rivers and Harbors Act of 1899 (33 USC Section 403) - See below for specific citation</b>			
Section 10 Permit (33 CFR Parts 320-330)	Requires permit for structures or work in or affecting navigable waters.	No/No	No alternative includes work that would affect a navigable waterway.
Executive Order on Protection of Wetlands (Executive Order No. 11, 40 CFR 6.302(a) and Appendix A)	Requires federal agencies to avoid, to the extent possible, the adverse impact associated with the destruction or loss of wetlands and to avoid support of new construction in wetlands if a practicable alternative exists.	No/Yes	May be relevant and appropriate to Cameron Lake waterfowl population.
Executive Order on Flood Plain Management (Executive Order No. 11,988) (40 CFR Part 6 Subpart A)	Actions that are to occur in flood plain should avoid adverse effects, minimize potential harm, restore and preserve natural and beneficial value.	Yes/No	About 90 percent of Cameron Station is located within a 100-year flood plain.
100-year Flood Plain Management (40 CFR 264.181)	RCRA treatment storage, or disposal facility must be designed, constructed, operated, and maintained to avoid washout within 100-year flood plain.	Yes/No	About 90 percent of Cameron Station is located within a 100-year flood plain.
Wilderness Act (16 USC 1311) (50 CFR 35.1)	Administers federally owned wilderness area to avoid impacts.	No/No	No wilderness area exists onsite or adjacent to the site.
National Wildlife Refuge System (16 USC 668) (50 CFR 27)	Restricts activities within a National Wildlife Refuge.	No/No	Site and immediate area do not contain areas designated as part of the National Wildlife Refuge System.



**POTENTIAL FEDERAL CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND  
APPROPRIATE REQUIREMENTS**

Standard, Requirement, Criteria, or Limitation	Description	Applicable/ Relevant and Appropriate	Comment
<b>Rivers and Harbors Act of 1899 (33 USC Section 403) - See below for specific citation (Continued)</b>			
Scenic River Act (16 USC 1271, 40 CFR 6.302(3))	Avoid taking or assisting in an action that will have a direct adverse effect on a scenic river specified in 16 USC 1276(a)	No/No	Actions at the site will not affect a scenic river.
Coastal Zone Management Act (16 USC 1451)	Conduct activities in accordance with state-approved management program.	No/Yes	May be relevant and appropriate because Cameron Station is under consideration as a coastal zone.
Virginia Wetlands Act (Code of Virginia, Title 62.1 Chapter 2.1 - Wetlands)	Establishes standards for the use and development of vegetated and nonvegetated wetlands.	No/Yes	May be relevant and appropriate because Cameron Lake is located in Arlington County. Cameron Lake is classified as a wetland by the U.S. Fish and Wildlife Service.
City of Alexandria Ordinance required by the Chesapeake Bay Ct (Ordinance No. 3558)	Restricts construction within Resource Protection Areas (RPAs). Stormwater treatment must be provided for areas draining to the Chesapeake Bay.	Yes/No	Cameron Lake, Cameron Run, Backlick Run, and Holmes Run are designated tributaries to the Chesapeake Bay and the areas within 100 feet of those tributaries and RPAs.
<b>Solid Waste Disposal Act (SDWA) (42 USC Section 6901-6987) as Amended by Resource Conservation and Recovery Act of 1976 (RCRA) - See below for specific citation</b>			
Criteria for Classification of Solid Waste Disposal Facilities and Practices (40 CFR Part 257)	Establishes criteria for use in determining which solid waste disposal facilities and practices pose a reasonable probability of adverse effects on health and thereby constitute prohibited open dumps.	No/Yes	If an alternative developed would involve the land disposal of solid waste, this part may be relevant and appropriate.
Hazardous Waste Management Systems, General (40 CFR Part 260)	Establishes procedure and criteria for modification or revocation of any provision in 40 CFR Part 260-265.	No/Yes	Relevant and appropriate if a substance at the site were to be excluded from the list of hazardous wastes.



**POTENTIAL FEDERAL CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND  
APPROPRIATE REQUIREMENTS**

Standard, Requirement, Criteria, or Limitation	Description	Applicable/ Relevant and Appropriate	Comment
<b>Solid Waste Disposal Act (SDWA) (42 USC Section 6901-6987) as Amended by Resource Conservation and Recovery Act of 1976 (RCRA) - See below for specific citation (Continued)</b>			
Identification and Listing of Hazardous Waste (40 CFR Part 261)	Defines those solid wastes that are subject to regulation as hazardous wastes under 40 CFR Parts 262-265 and Parts 124, 270, and 271	Yes/No	Identifies those substances considered to be hazardous wastes. Any substances considered to be hazardous wastes would have to be handled as such. No substances disposed of at Cameron Station have been identified as hazardous wastes. Regulation would be applicable to determining if groundwater treatment residuals are characteristic wastes. May also be applicable to contaminated soils.
Standards Applicable to Generators of Hazardous Waste (40 CFR Part 262)	Establishes standards for generators of hazardous waste.	Yes/No	If an alternative developed would involve generation of hazardous materials, these standards would be applicable.
Standards Applicable to Transporters of Hazardous Waste (40 CFR Part 263)	Establishes standards that apply to persons transporting hazardous waste within the U.S. if the transportation requires a manifest under 40 CFR Part 262.	Yes/No	If an alternative would involve offsite transportation of hazardous materials, these standards would be applicable.
Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities (40 CFR Part 264)	Establishes minimum national standards that define the acceptable management of hazardous waste for owners and operators of facilities that treat, store, and dispose of hazardous waste.	Yes/No	If groundwater treatment residuals are characteristic wastes, then these regulations would be applicable. May also be applicable to contaminated soils.
Subpart B	General Facility Standards.	Yes/No	General facility standards such as waste analysis, security, and personnel training could be applicable for onsite and offsite remedial actions.

**POTENTIAL FEDERAL CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND  
APPROPRIATE REQUIREMENTS**

Standard, Requirement, Criteria, or Limitation	Description	Applicable/ Relevant and Appropriate	Comment
<b>Solid Waste Disposal Act (SDWA) (42 USC Section 6901-6987) as Amended by Resource Conservation and Recovery Act of 1976 (RCRA) - See below for specific citation (Continued)</b>			
Subpart C	Preparedness and Prevention.	Yes/No	Preparedness and prevention regulations pertaining to design, equipment, and communication standards could be applicable for onsite and offsite remedial actions.
Subpart D	Contingency Plan and Emergency Procedures.	Yes/No	Regulations requiring the development of a contingency plan and emergency procedures could be applicable for onsite and offsite remedial actions.
Subpart E	Manifest System, Recordkeeping and Reporting.	Yes/No	Regulations requiring recordkeeping reporting could be applicable for hazardous wastes removed from Cameron Station.
Subpart F	Releases from Solid Waste Management Units.	No/Yes	Groundwater protection requirements involving monitoring may be relevant and appropriate for the existing conditions at Cameron Station if complete remediation is not performed.
Subpart G	Closure and Post-Closure.	No/Yes	May be relevant and appropriate for the existing landfill.
Subpart H	Financial Requirements.	No/Yes	Financial requirements for closure and post-closure activities would be a To Be Considered (TBC) Criteria.
Subpart I	Use and Management of Containers.	Yes/No	If an alternative required the use of containers, this subpart would be applicable for groundwater if treatment residuals are characteristic wastes.



**POTENTIAL FEDERAL CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND  
APPROPRIATE REQUIREMENTS**

Standard, Requirement, Criteria, or Limitation	Description	Applicable/ Relevant and Appropriate	Comment
<b>Solid Waste Disposal Act (SDWA) (42 USC Section 6901-6987) as Amended by Resource Conservation and Recovery Act of 1976 (RCRA) - See below for specific citation (Continued)</b>			
Subpart J	Tanks.	Yes/No	If an alternative requires the use of tanks, this subpart would apply.
Subpart K	Surface Impoundments.	No/No	Treatment in surface impoundments is not anticipated.
Subpart L	Waste Piles.	No/No	Treatment in waste piles is not anticipated.
Subpart M	Land Treatment.	No/No	Land treatment is not anticipated.
Subpart N	Landfills.	Yes/No	If an alternative developed would involve landfilling of hazardous substances, then the requirements would be applicable.
Subpart O	Incineration.	Yes/No	If an alternative developed would involve incineration of hazardous substances, the requirements would be applicable.
Interim Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities (40 CFR Part 265)	Establishes minimum national standards that define the acceptable management of hazardous waste during the period of interim status and until certification of final closure, or if the facility is subject to post-closure requirements, until post-closure responsibilities are fulfilled.	Yes/No	Remedies should be consistent with the more stringent Part 264 standards because these represent the ultimate RCRA compliance standards and are consistent with CERCLA's goal of long-term protection of public health and welfare and the environment. (See Subparts B through O, above).
Standards for the Management of Specific Hazardous Waste and Specific Types of Hazardous Waste Management Facilities (40 CFR Part 266)	Establishes requirements that apply to recyclable materials that are reclaimed to recover economically significant amounts of precious metals, including gold and silver.	No/No	No recyclable materials exist at Cameron Station.

## POTENTIAL FEDERAL CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Standard, Requirement, Criteria, or Limitation	Description	Applicable/ Relevant and Appropriate	Comment
<b>Solid Waste Disposal Act (SDWA) (42 USC Section 6901-6987) as Amended by Resource Conservation and Recovery Act of 1976 (RCRA) - See below for specific citation (Continued)</b>			
Interim Standards for Owners and Operators for New Hazardous Waste Land Disposal Facilities (40 CFR Part 267)	Establishes minimum national standards that define acceptable management of hazardous waste for new land disposal facilities.	No/No	Construction of land disposal facilities is not anticipated at Cameron Station.
Land Disposal Restrictions (40 CFR Part 268)	Identified hazardous wastes that are restricted from land disposal and defines those circumstances under which an otherwise prohibited waste could continued to be land-disposed.	Yes/No	If a groundwater alternative involves placement of characteristic wastes, this part would be applicable.
Hazardous Waste Permit Program (40 CFR Part 270)	Establishes provisions covering basic USEPA permitting requirements.	No/No	A permit is not required for an onsite CERCLA response action. Although Cameron Station is not a CERCLA site, CERCLA guidance is followed during remediation activities.
Underground Storage Tanks (40 CFR Part 280)	Establishes regulations related to underground storage tanks.	Yes/No	Underground storage tanks exist at the PX Gas Station and at several other locations at Cameron Station.
Occupational Safety and Health Act (29 USC Section 651-678)	Regulates worker health and safety.	Yes/No	Under 40 CFR Section 300.38, requirements of OSHA apply to all response activities under the NCP.
<b>Safe Drinking Water Act (42 USC Section 300(g) - See below for specific citation)</b>			
Standards for Owners and Operators of Public Water Supply System (40 CFR Part 141)	Defines treatment (water quality) requirements for public water supply systems.	No/Yes	MCLs are considered relevant and appropriate as action-specific ARARs.
Underground Injection Control Regulations (40 CFR Parts 144-147)	Provides for protection of underground sources of drinking water.	No/No	Underground injection is not anticipated.



**POTENTIAL FEDERAL CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND  
APPROPRIATE REQUIREMENTS**

Standard, Requirement, Criteria, or Limitation	Description	Applicable/ Relevant and Appropriate	Comment
<b>Federal Water Pollution Control Act (Clean Water Act - CWA) (33 USC Section 1251-1376) - See below for specific citation</b>			
National Pollutant Discharge Elimination System (40 CFR Parts 122, 125)	Requires permits for the discharge of pollutants from any point source into waters of the United States.	No/Yes	No permit is required for onsite CERCLA remedial actions, but the substantive requirements would apply if an alternative development would discharge into Cameron Run.
National Pretreatment Standards (40 CFR Part 403)	Sets standards to control pollutants that pass through or interfere with treatment processes in POTWs or that may contaminate sewage sludge.	Yes/No	If an alternative discharges to a POTWs, this part will be applicable.
Toxic Pollutant Effluent Standards (40 CFR Part 129)	Establishes effluent standards or prohibitions for certain toxic pollutants: aldrin, dieldrin, DDT, endrin, toxaphene, benzidine, and PCBs.	No/No	Aldrin, Dieldrin, DDT, Endrin, and PCBs were not detected in groundwater samples at Cameron Station.
Marine Protection, Research, and Sanctuaries Act (13 USC Section 1401-1445)	Regulates ocean dumping.	No/No	No ocean dumping is anticipated.
Toxic Substances Control Act (TSCA) (13 USC Section 2601-2629)	Establishes removal and disposal requirements for PCBs. Also establishes removal and disposal requirements for asbestos.	Yes/No	PCBs were detected in wipe samples at the site. Asbestos was detected in several buildings at Cameron Station.
Clean Air Act National Ambient Air Quality Standards (40 CFR Parts 50, 52, 53, 60, and 61)	Treatment technology standards for emissions to air. Also establishes ambient air quality hazards.	Yes/No	If an alternative involved emissions governed by these standards, then the requirements would be applicable.



# **POTENTIAL FEDERAL CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS**

Standard, Requirement, Criteria, or Limitation	Description	Applicable/ Relevant and Appropriate	Comment
<b>Hazardous Materials Transportation Act (49 USC Section 1801-1813) - See below for specific citation</b>			
Hazardous Materials Transportation Regulations (49 CFR Part 107, 171-177)	Regulates transportation of hazardous materials.	Yes/No	If an alternative involved emissions governed by these standards, then the requirements would be applicable.
Virginia Solid Waste Management Act (Code of Virginia Title 10.1)	Establishes permitting and closure requirements for sanitary landfills.	No/No	Landfill at Cameron Station fits the category of Construction/Demolition/Debris Landfill.
Virginia Hazardous Waste Management Act (Code of Virginia Title 10.1)	Establishes permitting requirements for the transportation, storage, treatment and disposal of hazardous waste.	Yes/No	Permitting requirements will apply if hazardous wastes are transported from Cameron Station in quantities that exceed the limits for exempt small quantity generators. Also applies if onsite treatment is required.
Virginia Solid Waste Regulations (VR 672-20-10)	Establishes permitting requirements for landfills. Requires that unpermitted facilities that do not pose a threat to health or environment be closed in accordance with Part V of these regulations.	Yes/No	The Cameron Station landfill is an unpermitted Construction/Demolition/Debris Landfill which does not pose a threat to human health or the environment. Closure by capping should meet the regulatory requirements. An exception to these requirements applies to the landfill of solid waste which includes only rocks, brick, block, dirt, and broken concrete and road pavement.
Part VII - Special Wastes	Establishes disposal requirements for friable asbestos and wastes containing PCBs.	Yes/No	Friable asbestos waste must be disposed in a special purpose landfill or in a designated area of a sanitary landfill. Solid wastes containing PCB concentrations between 1.0 and 50.0 mg/kg are restricted to disposal in sanitary landfills or industrial waste landfills.

**POTENTIAL FEDERAL CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND  
APPROPRIATE REQUIREMENTS**

Standard, Requirement, Criteria, or Limitation	Description	Applicable/ Relevant and Appropriate	Comment
<b>Virginia Hazardous Waste Management Regulations (Virginia Department of Waste Management, Regulations 672-10-01) - See below for specific citation</b>			
Part I - Definitions	Provides definitions for regulatory terminology.	Yes/No	Definitions assist in legal interpretation.
Part II - General Information and Legislative Authority	Empowers the Virginia Waste Management Board with authority to supervise and control waste management activities in the state.	No/No	Administrative in nature.
Part III - Identification and Listing of Hazardous Wastes	Incorporates and adopts the listing criteria of 42 CFR 261. Provides a revised table of contaminants for the toxicity characteristic. Provides a listing of F, K, P, U wastes.	Yes/No	Will be applicable if hazardous wastes are generated during remediation.
Part IV - Notification of Hazardous Waste Management Activity Regulations	Requires notification for the management of hazardous waste.	No/No	Applies to permitted facilities.
Part V - Manifest Regulations for Hazardous Waste Management	Adopts EPA manifest requirements.	Yes/No	Manifests will be required if hazardous wastes are transported offsite.
Part VI - Regulations Applicable to Generators of Hazardous Waste	Establishes requirements for obtaining an EPA Identification Number and recordkeeping and reporting.	Yes/No	Applicable to generators of hazardous waste.
Part VII - Regulations Applicable to Transporters of Hazardous Wastes	Provides reporting and recordkeeping requirements for transporters of hazardous waste.	No/No	Applies to transporters of hazardous waste.
Part VIII - Hazardous Waste Management Facility Regulations	Provides requirements for liability insurance and other financial issues.	No/No	Applicable to permitted facilities.



**POTENTIAL FEDERAL CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND  
APPROPRIATE REQUIREMENTS**

Standard, Requirement, Criteria, or Limitation	Description	Applicable/ Relevant and Appropriate	Comment
<b>Virginia Hazardous Waste Management Regulations (Virginia Department of Waste Management, Regulations 672-10-01) - See below for specific citation (Continued)</b>			
Part IX - Hazardous Waste Management Facility Interim Status Standards	Establishes minimum national standards that define the acceptable management of hazardous waste during the period of criteria status.	No/No	Applicable to permitted facilities.
Part X - Standards for Permitted Hazardous Waste Management Facilities	Establishes minimum standards which define the acceptable management of hazardous waste.	No/No	Applicable to permitted facilities.
Virginia Underground Storage Tanks Regulations (VR 680-13-02)	Establishes requirements for new tank systems, upgrade of existing tank systems and closure of out of service UST systems.	Yes/No	UST regulations are applicable to USTs at Cameron Station.

**This page intentionally left blank.**



**► FIGURES F-1 THROUGH F-10  
OUs AT CAMERON STATION ◀**

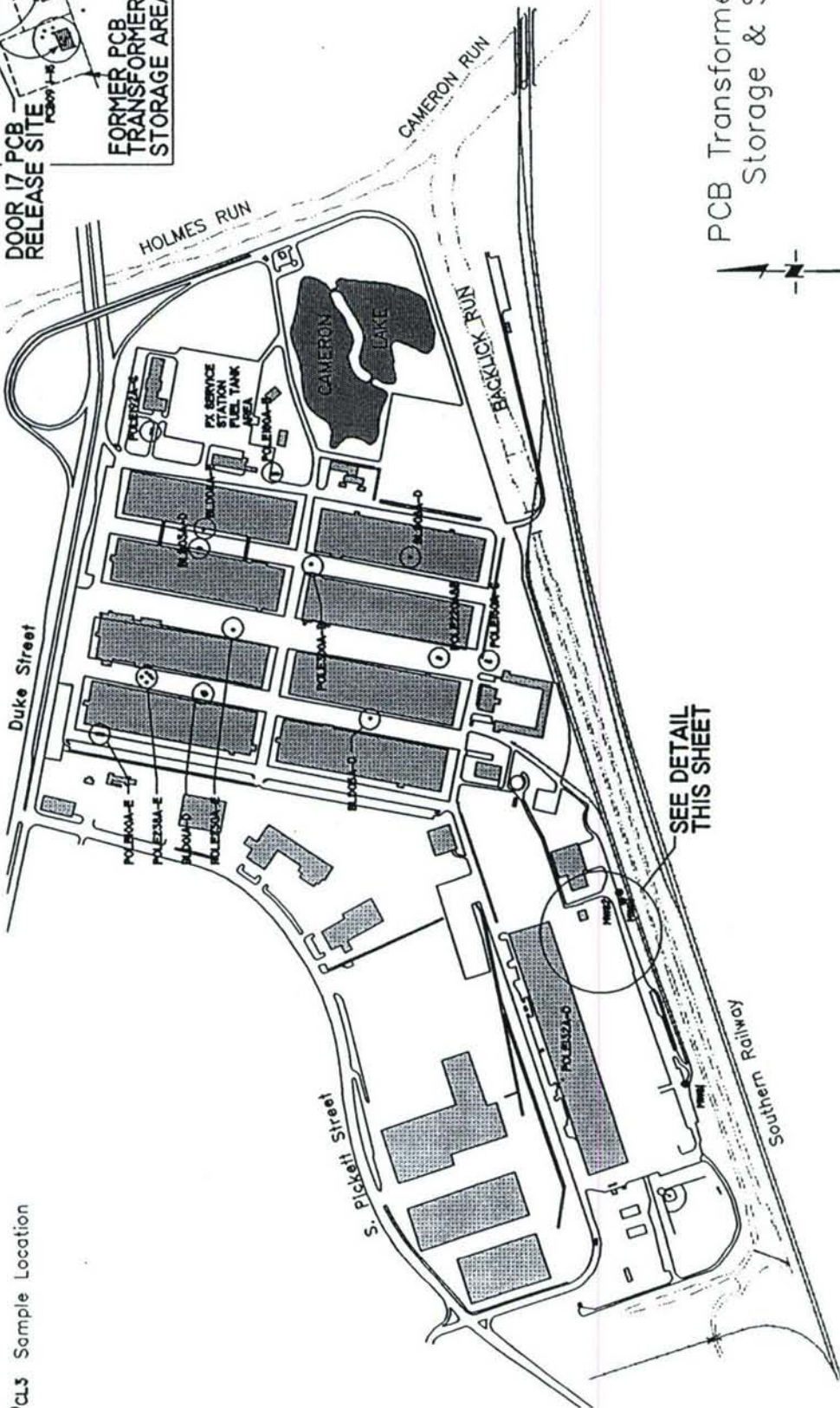
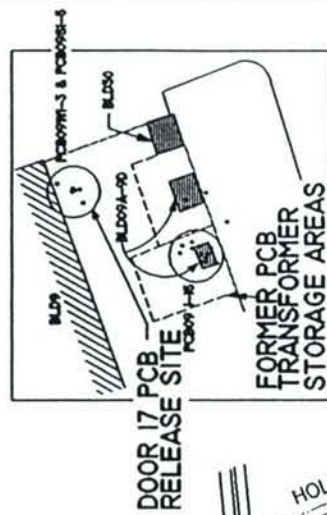
**This page intentionally left blank.**

# EXPLANATION

Building

Railroad Lines

CL3 Sample Location



OU1  
PCB Transformer Service,  
Storage & Spill Areas

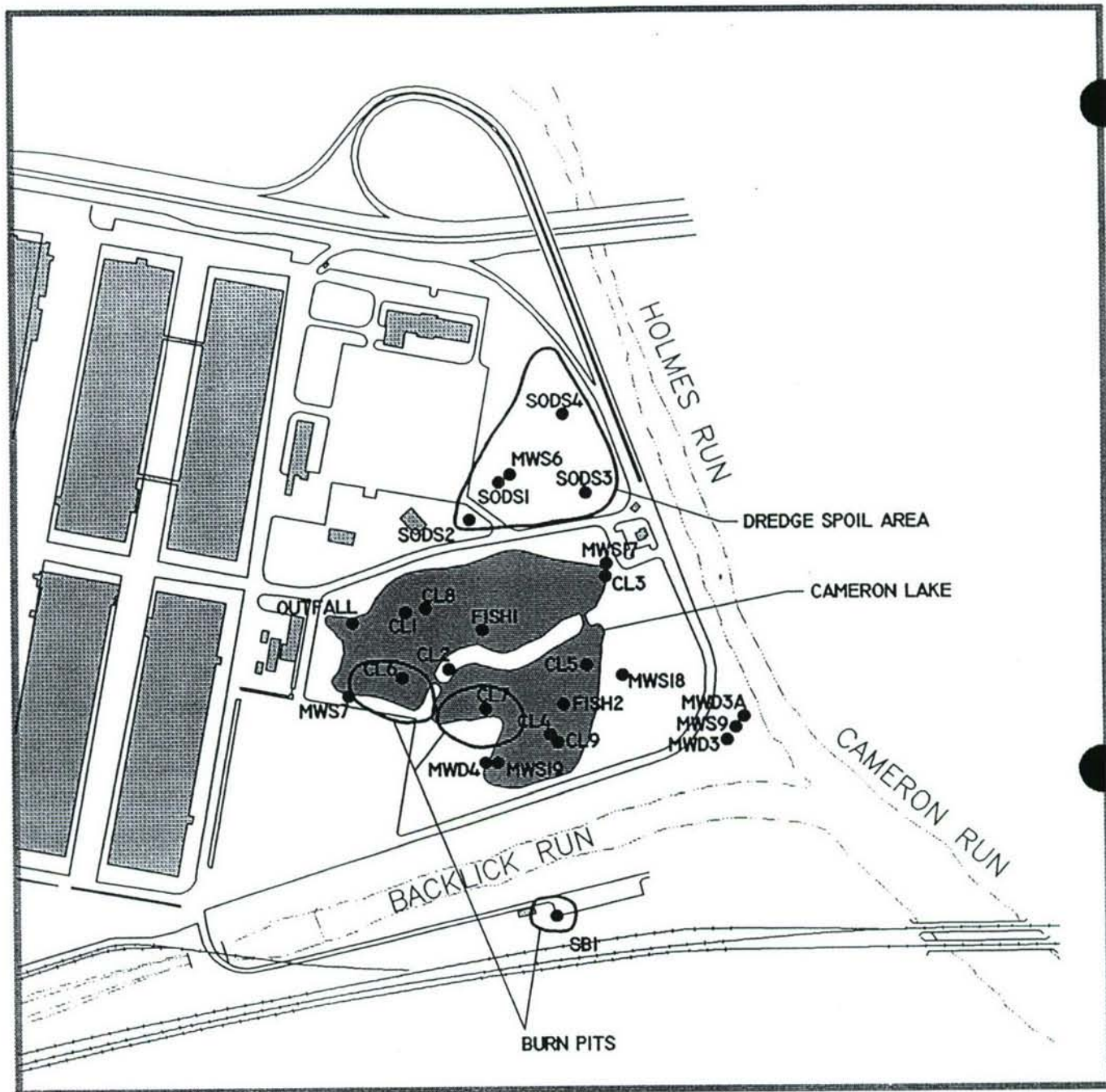


Figure F-1

Sources: Cameron Station Remedial Investigation, 1993; CERFA Report, 1994

Cameron Station, Virginia



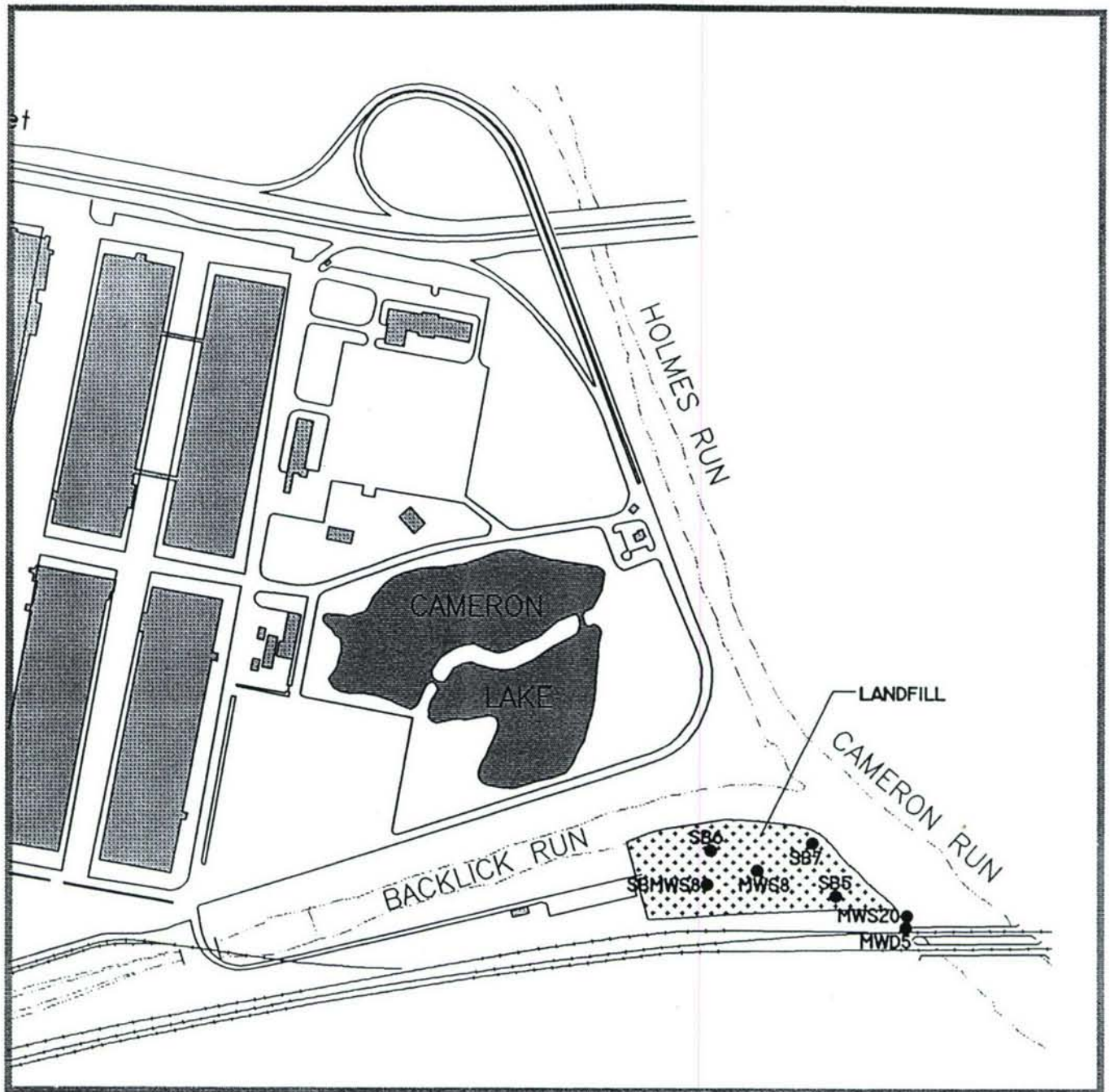


OU2  
Cameron Lake, Burn Pits,  
and Dredge Spoil Area





Figure F-2

Sources: Cameron Station Remedial Investigation, 1993; CERFA Report, 1994

Cameron Station, Virginia



#### EXPLANATION

-  Building
-  Railroad
-  Sample Location
-  Landfill

OU3  
Former Landfill

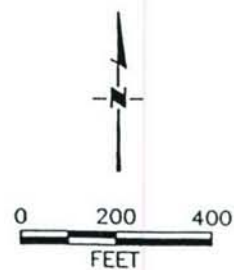


Figure F-3

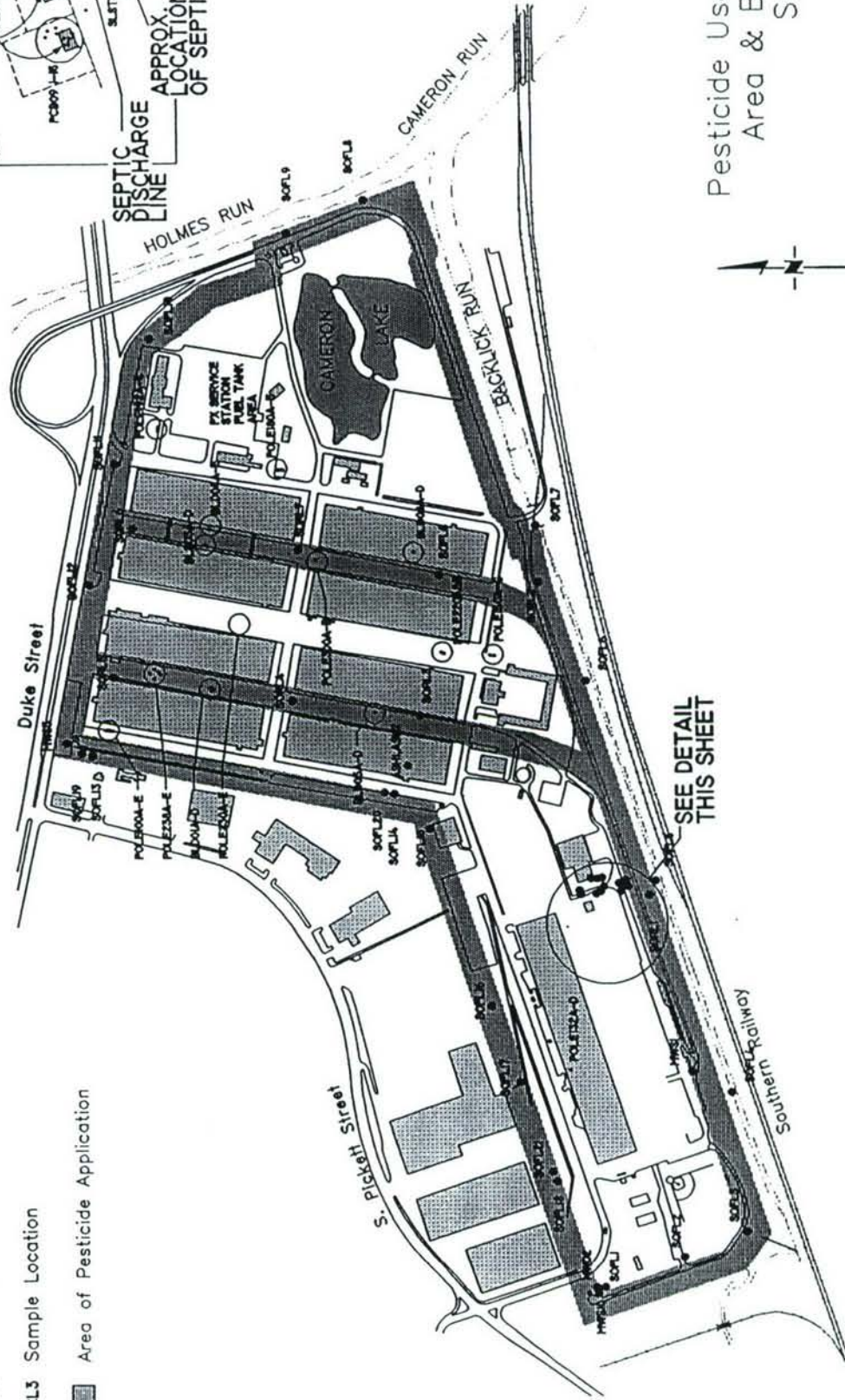
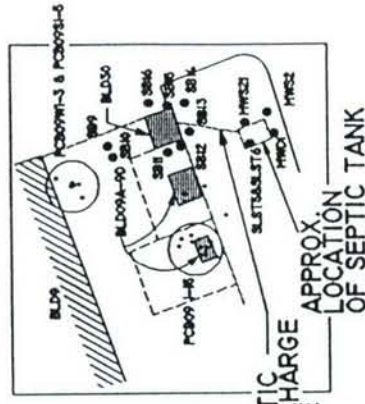
Sources: Cameron Station Remedial Investigation, 1993; CERFA Report, 1994

Cameron Station, Virginia



# EXPLANATION

- Building
- Railroad Lines
- CL3 Sample Location
- Area of Pesticide Application



OU 4  
Pesticide Use, Storage  
Area & Building 30  
Septic Tank

Figure F-4



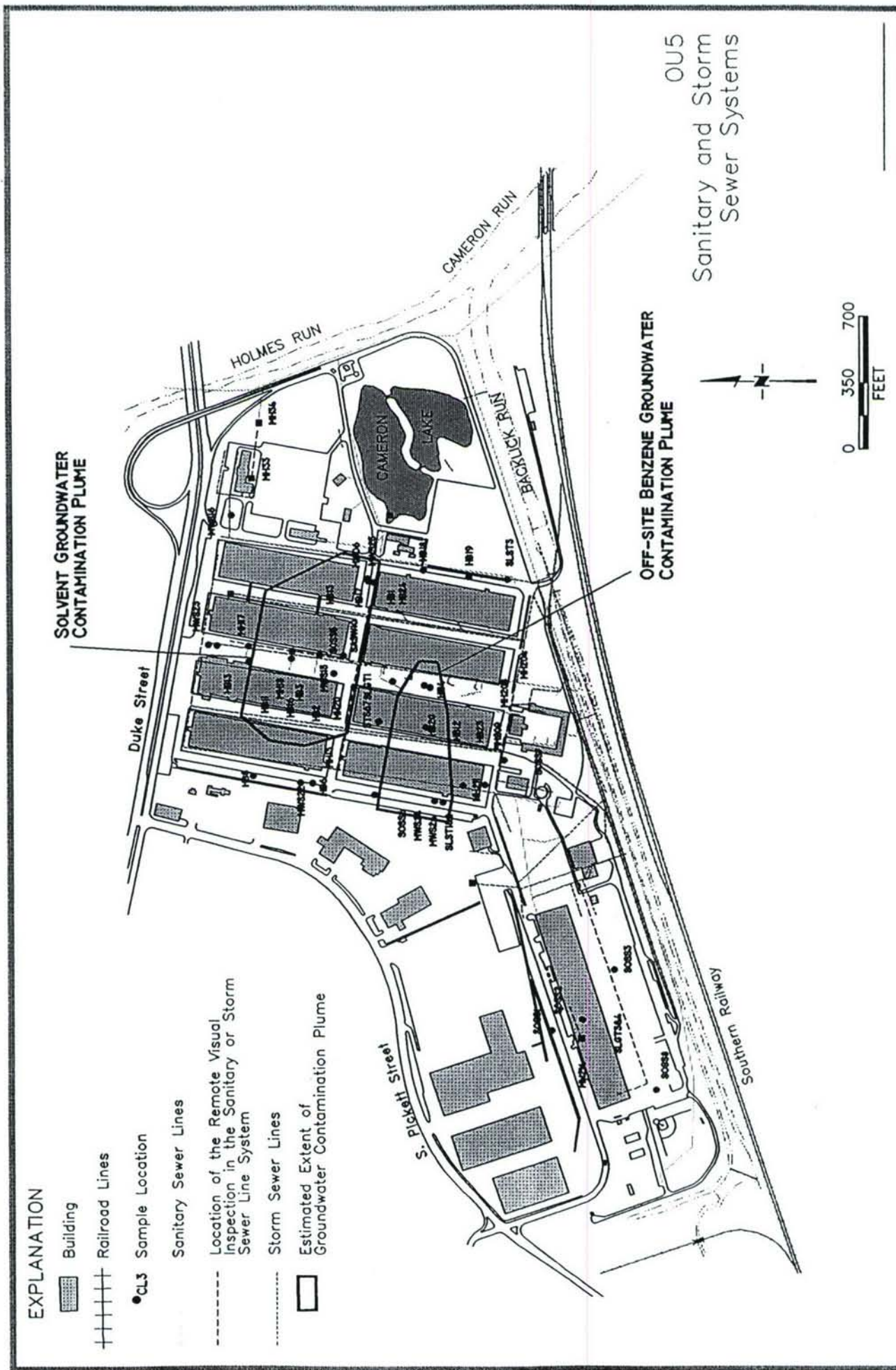


Figure F-5

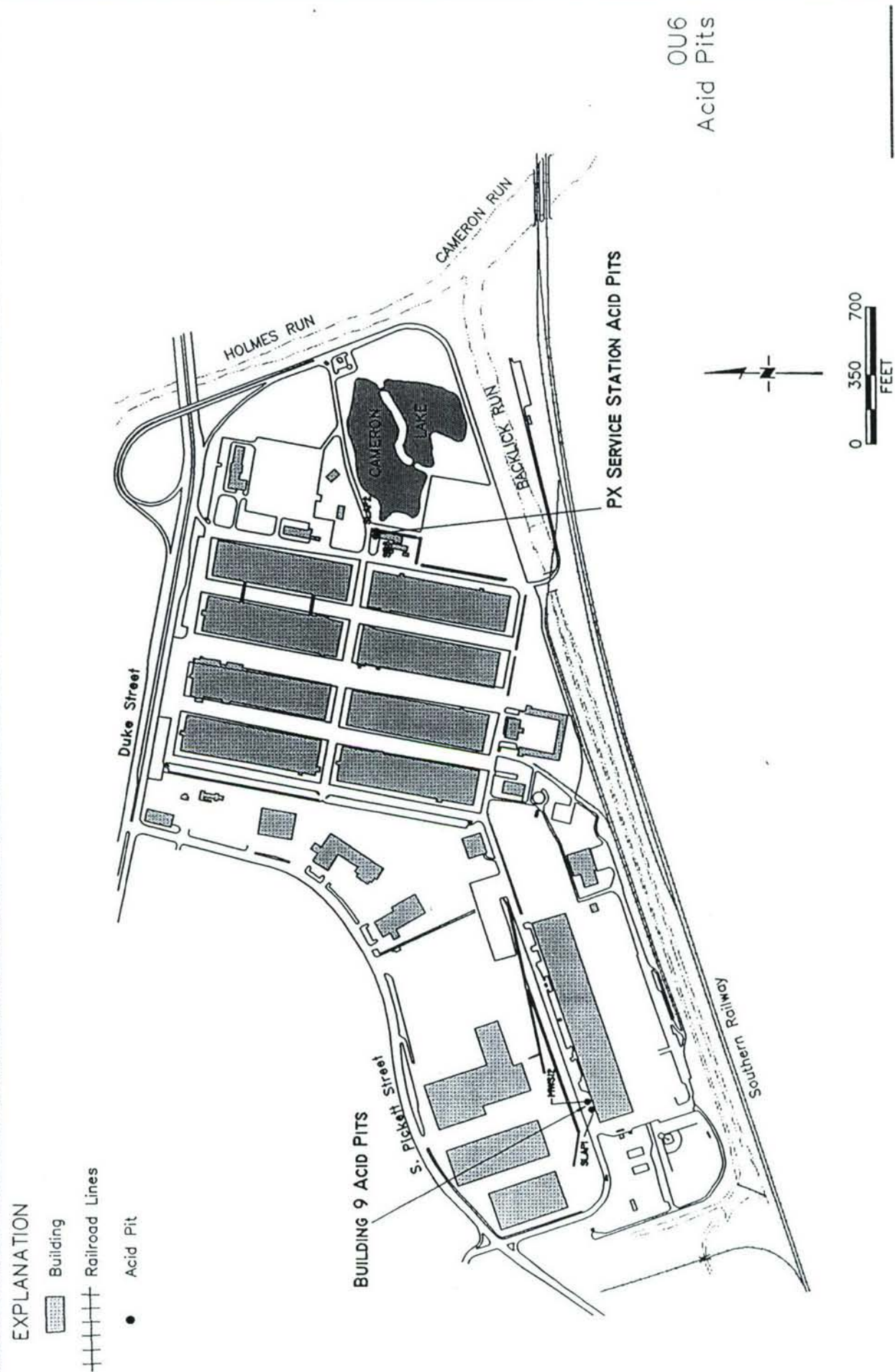
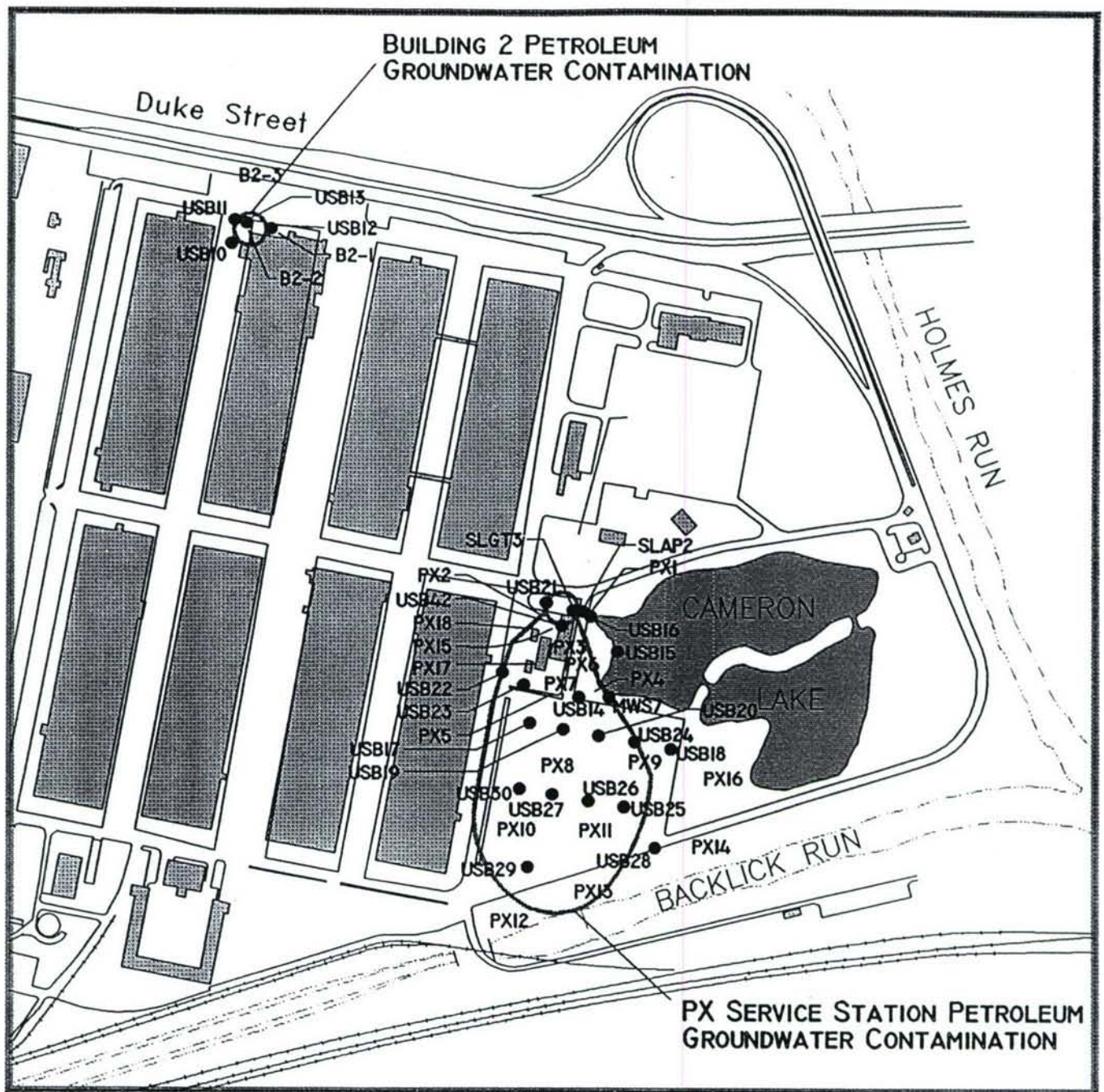


Figure F-6





#### EXPLANATION

-  Building
-  Railroad
-  •CL3 Sample Location
-  Approximate Area of Release

OU8  
PX Service Station  
and Building 2 USTs

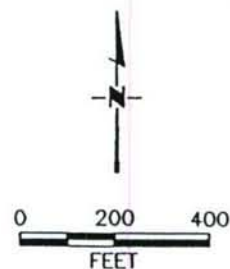


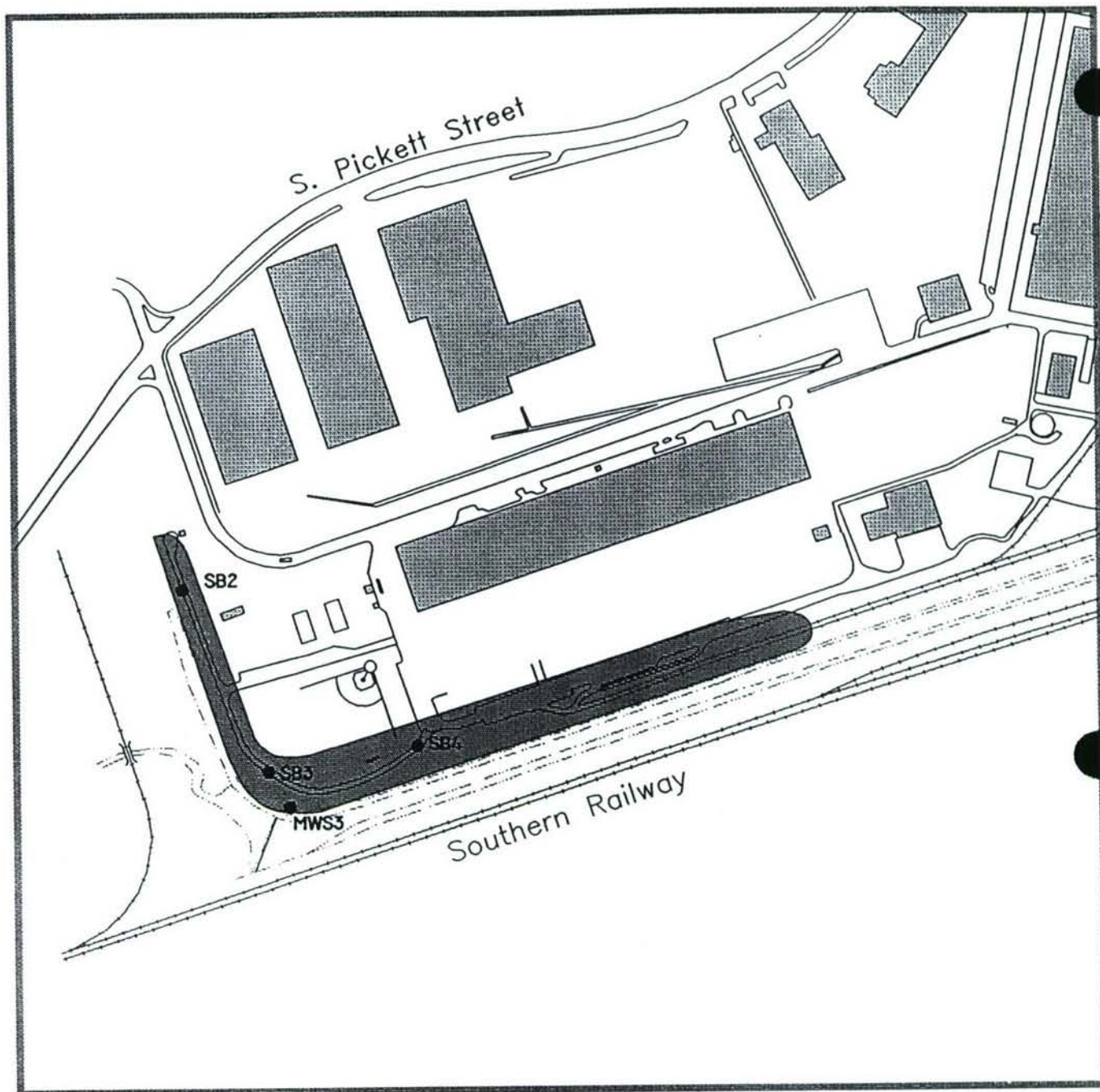
Figure F-7

Sources: Cameron Station Remedial Investigation, 1993; CERFA Report, 1994

Cameron Station, Virginia

Appendix F-49





#### EXPLANATION

-  Building
-  Railroad Lines
-  SB2 Sample Location
-  Road Oil/Fly Ash Deposition Area

OU9  
Location of  
Road Oil/Fly Ash



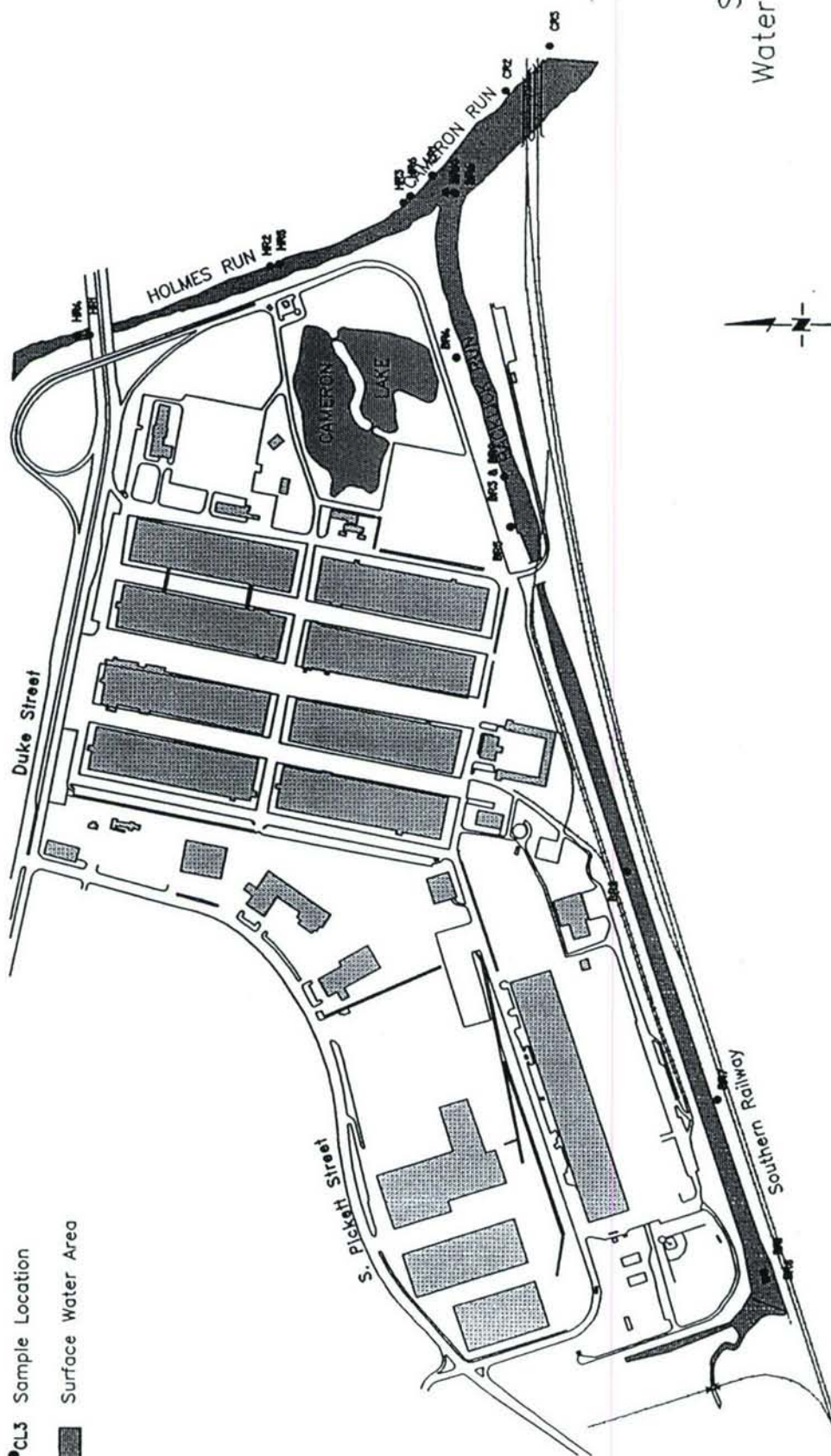
Figure F-

Sources: Cameron Station Remedial Investigation, 1993; CERFA Report, 1994

*Cameron Station, Virginia*

# EXPLANATION

- Building
- Railroad Lines
- CL3 Sample Location
- Surface Water Area



OU10  
Surface  
Water Areas

Sources: Cameron Station Remedial Investigation, 1993; CERFA Report, 1994

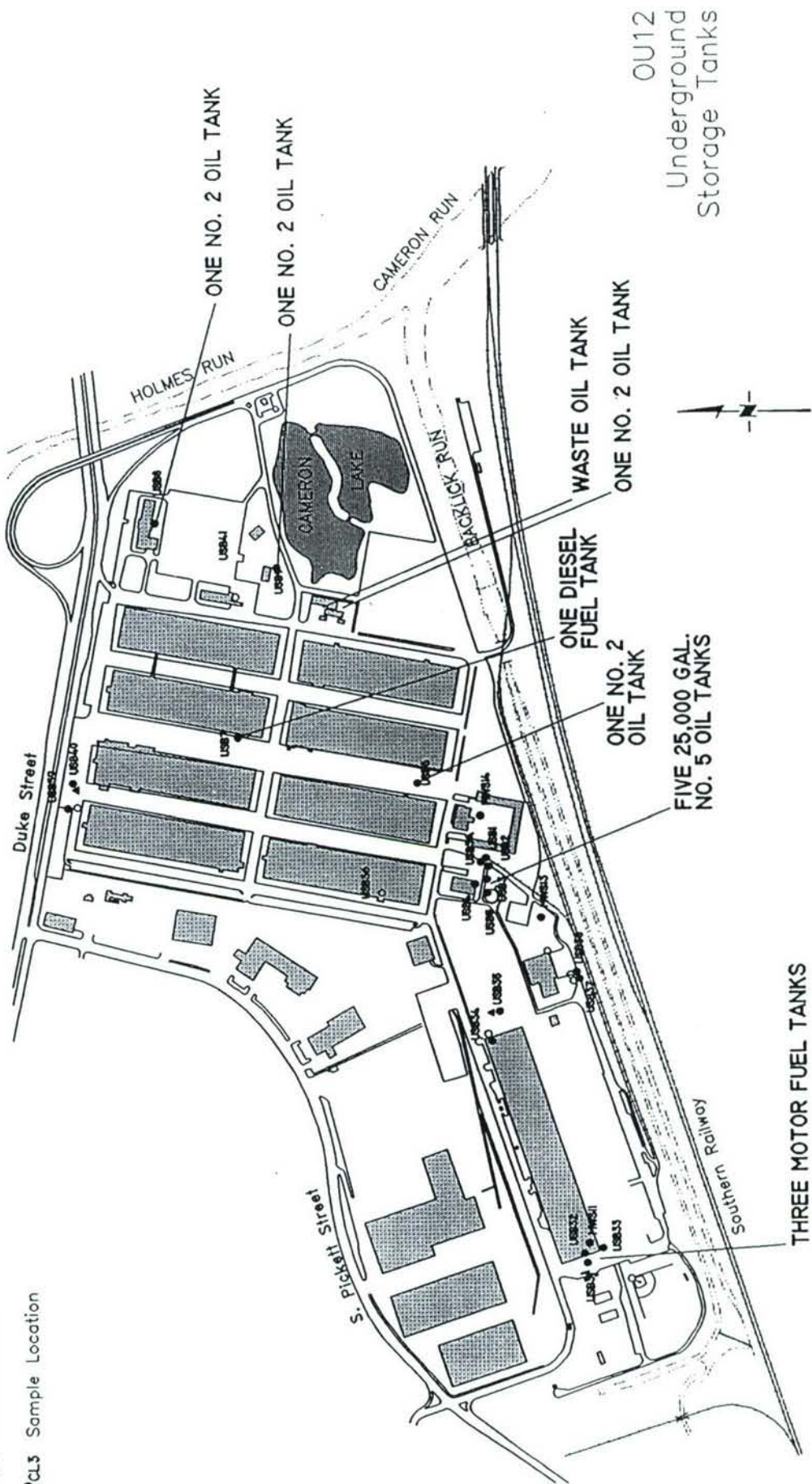
Figure F-9

Cameron Station, Virginia



# EXPLANATION

- Building
- Railroad Lines
- CL3 Sample Location



0 350 700  
FEET

Figure F-10

Sources: Cameron Station Remedial Investigation, 1993; CERFA Report, 1994

► **ENVIRONMENTAL JUSTICE ISSUES**  
**AT CAMERON STATION** ◀



**This page intentionally left blank.**

# ENVIRONMENTAL JUSTICE ISSUES AT CAMERON STATION

There has been growing concern during the past decade about the effect of environmental pollution on particular population groups. A movement to ensure environmental justice for all individuals is the outgrowth of a widespread belief that minority and low-income communities bear a disproportionately high risk of exposure to health hazards related to contamination or pollution.

The President issued Executive Order 12898 on Environmental Justice on February 11, 1994. The Order and its accompanying Presidential memorandum marked a significant step toward focusing the attention of Federal agencies on concerns of environmental justice. The order requires certain Federal agencies, including the DoD, to the greatest practicable and permitted by law, to make environmental justice part of their missions by identifying and addressing disproportionately high and adverse health or environmental effects on minority and low-income populations.

At closing installations such as Cameron Station, considerations of environmental justice must be examined in the content of cleanup activities, including their relationship to plans for reuse of land and community redevelopment initiatives. The decision-making processes for establishing cleanup priorities, determining relative risk, developing reuse plans, and other actions related to installation closure, must ensure that environmental protection and environmental justice are adequately addressed.

The Defense Environmental Response Task Force (DERTF) of the DoD formed the Environmental Justice Subworking Group (EJ SWG) to determine whether concerns related to environmental justice are being adequately addressed at installations affected by BRAC. The EJ SWG has identified a number of significant issues related to environmental justice that are applicable to environmental restoration at BRAC installations. These include:

- ▶ Outreach
- ▶ Cultural Resources
- ▶ Risk Assessment
- ▶ Cleanup Priorities
- ▶ Risk Communication
- ▶ Epidemiology
- ▶ Natural Resources
- ▶ Brownfield or Urban Revitalization
- ▶ Deed and Lease Restrictions.

Cameron Station has proactively addressed many of these issues in its current BRAC environmental restoration, compliance, and natural resources strategies. The Cameron Station



approach for addressing each of the EJ SWG issue areas is summarized below and is also addressed in context, in applicable sections of the BCP.

***Outreach.*** Cameron Station has an active outreach program. A PIRP was prepared in April 1993. The plan establishes the procedures for effective communication with all elements of the surrounding community on environmental issues. A RAB has been formed at the installation and meets monthly to promote public involvement and provide a forum for public input on the Cameron Station IRP. During the formation of the RAB, particular attention was placed on ensuring balanced community representation. Public hearings are conducted to obtain community input on particular environmental documents including EISs and PPs. The installation also keeps community members informed through Open Houses and Installation Tours, the issuance of Fact Sheets and the maintenance of information repositories.

***Cultural Resources.*** Investigations conducted at Cameron Station to date including an archeological survey completed in August 1992 have not identified any religious sites or sacred lands at the installation which could have environmental justice impacts. In the event that any significant cultural resource sites are identified at Cameron Station in the future, those sites will be protected in compliance with regulatory requirements and with consideration of cultural impacts. Environmental justice issues such as the provision of installation access to interested parties will be investigated.

***Risk Assessment.*** The baseline risk assessment conducted during the RI did not discriminate in its evaluation of risk. An exposure pathway analysis was conducted to identify all potential on-site or off-site receptor population. The risk assessment then calculated risk caused by each restoration site and installation total risk for each of the identified receptor populations. The potential for varying patterns of consumption or other risk factors relative to particular population groups in the Cameron Station area were considered in the RI risk assessment exposure pathway analysis. This ensured that the risk assessment accurately evaluated risk for all potential receptor populations.

Additional, qualitative risk assessments were conducted during FS preparation and during the review of the remedial action proposed plan to identify any risk to on-site or off-site populations which might be caused by proposed remedial actions.

***Cleanup Priorities.*** The prioritization of environmental restoration at Cameron Station versus other BRAC installations is conducted on a programmatic level by the DA and DoD. Cameron Station was included in a pilot study conducted by USEPA Region III to map poverty distribution and minority distribution around BRAC installations in Region III. Copies of these maps are provided as Figures F-11 and F-12.

On an installation basis, the Cameron Station Reuse Plan provides the basis for determining cleanup priority. The RI risk assessment identified site specific and installation total risks to on-site and off-site populations. This information was evaluated in conjunction with community reuse goals presented in the Reuse Plan. A restoration strategy was then developed that accomplish two goals; prioritization of cleanup to mitigate any immediate risks to receptor



populations, and prioritization of cleanup based on community reuse planning goals and priorities.

**Risk Communication.** Issues relative to human health risks are fully disclosed to the public through the various outreach activities conducted by the installation.

**Epidemiology:** The most current risk assessment data and epidemiological studies were utilized in the preparation of the Cameron Station RI Risk Assessment. The potential for differences in contaminant impacts based on racial or demographic differences in receptor populations were considered in the risk assessment.

**Natural Resources.** The baseline risk assessment conducted during the RI evaluated potential contaminant pathways to on-site and off-site receptors via ingestion of vegetation and fish from the installation's waterbodies. Assumptions on potential consumption patterns were made with consideration of any cultural variations.

**Brownfield and Urban Revitalization.** Cameron Station is located within an urban area of Alexandria, Virginia. In order to maximize the reuse opportunities for Cameron Station, the Town of Alexandria established the Task Force to Monitor the Closing of Cameron Station whose goal is to plan and implement reuse of Cameron Station in a manner that mitigates the negative impacts of installation closure and meets the communities long term goals. Full community participation was solicited in the reuse planning process by establishing broad based community representation on the Task Force and by conducted numerous public meeting to obtain community input.

As part of the DoD disposal process, McKinney Act screening has been conducted to identify potential use of the property by providers for the homeless. Providers for the homeless expressed interest in two buildings, Buildings 9 and 20. Following guidance promulgated as a result of the Pryor Amendment, the Task Force to Monitor the Closing of Cameron Station established a subcommittee on the homeless which has proactively met with these providers for the homeless to further discuss Cameron Station facilities which would be appropriate and economically feasible for their use.

The City of Alexandria has filed an application with the National Park Service to acquire 63 acres of the installation (Reuse Parcel) for open space and recreation use by the community as outlined with the community reuse plan to further enhance the urban development of the area.

**Deed and Lease Restrictions.** Deed and lease restrictions are a critical element in the disposal planning process for Cameron Station because RA at the installation will continue past installation closure and property disposal. Issues such as access, liability for RA equipment and operation, impacts on redevelopment, and conflicts with construction are being investigated as bid documents for the sale/development of Cameron property are prepared. Small, small disadvantaged and minority-owned business impacts from potential deed and lease restricts will be considered by the U.S. Army throughout the disposal process.







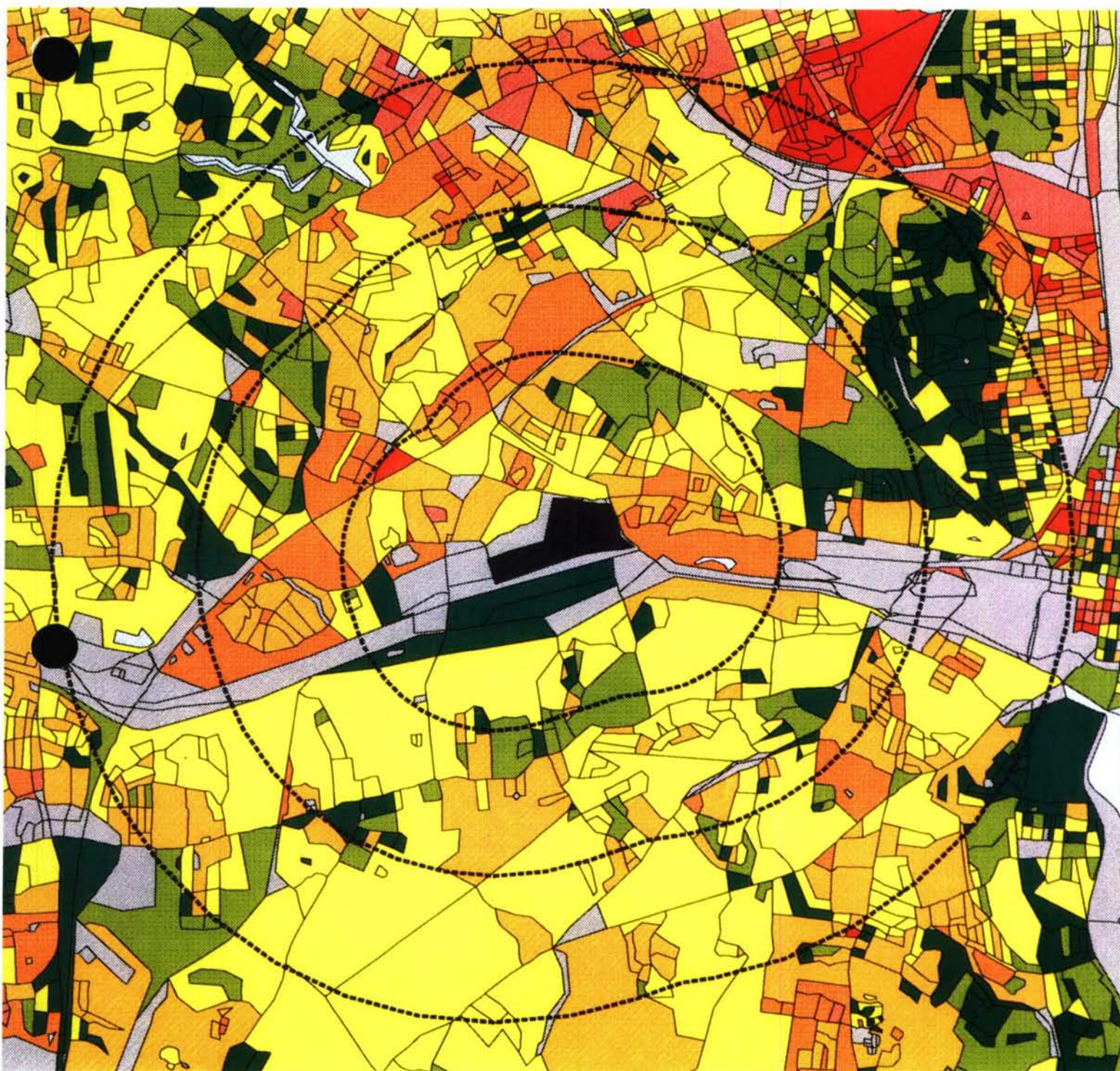
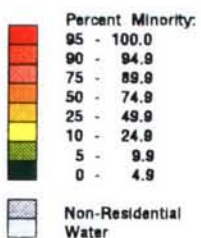


FIGURE F-11

Minority Distribution Surrounding  
Cameron Station

Appendix F-58



Source: Demographic Data from U.S. Census Bureau  
1990 PL90-171 Data Files  
Census Block Data From U.S. Census Bureau  
TIGER Files  
Projection: Albers Equal Area  
Date: March 18, 1994  
Prepared By: Environmental Protection Agency  
Region III Geographic Information Center

0 0.25 0.5 0.75 1



MILES

Scale 1 : 60362





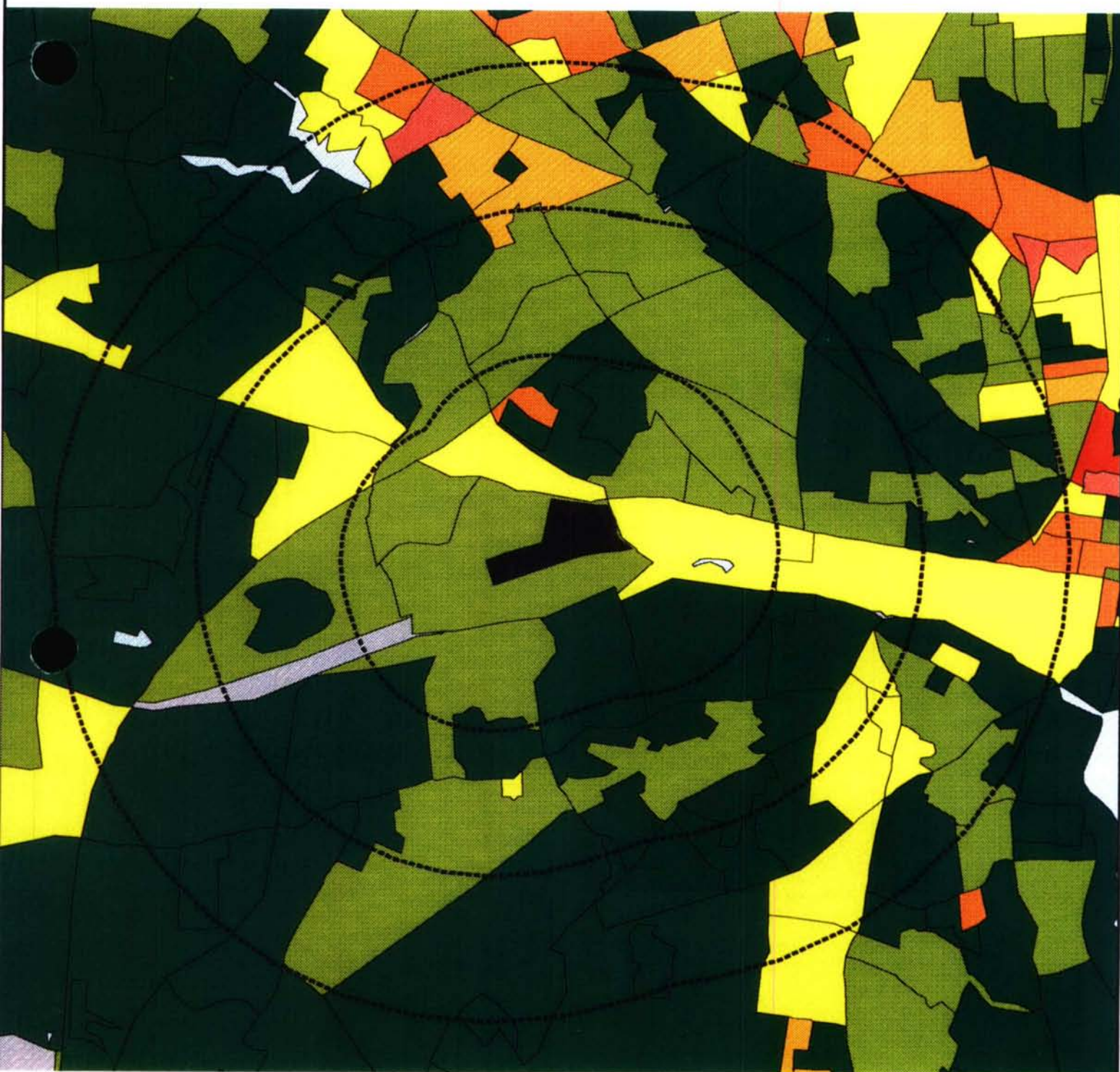
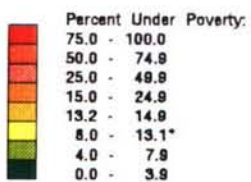


FIGURE F-12

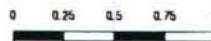
**Poverty Distribution Surrounding  
Cameron Station**

Appendix F-59



\*National Poverty  
Rate = 13.1%

Source: Demographic Data from U.S. Census Bureau  
1990 PL90-171 Data Files  
Census Block Data From U.S. Census Bureau  
TIGER Files  
Projection: Albers Equal Area  
Date: March 18, 1994  
Prepared By: Environmental Protection Agency  
Region III Geographic Information Center



MILES

Scale 1 : 60362



**► FIGURE 3-3  
SUITABLE PROPERTY FOR TRANSFER MAP ◀**



**This page intentionally left blank.**